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OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXIV MUSKOGEE, OKLAHOMA, APRIL, 1931. NUMBER 4

A PLEA FOR EARLY TREATMENT OF CROSS EYES*

C. B. BARKER, A.B., M.D., F.A.C.S.
GUTHRIE

Ocular muscle imbalance cases are often advised to wait until maturity, with the hope that they may outgrow their deformity. The number benefited by waiting is so small, as compared with the large number corrected when treatment is started when young, that we recommend and insist that treatment be started when first discovered, which is usually between two and three years of age, and completed before the eighth year if possible.

Vision usually develops before the age of eight, therefore waiting is procrastination, due to the fact that if one eye deviates then only one eye can be used at a time, and the little patient contents himself with using the better eye and ignores the other to prevent double vision; then the deviating eye does not develop due to lack of use, during the best period for development, and this accounts for so many adult squint cases that are hopelessly blind in one eye.

The strength of each muscle for distance and near is determined by its tonicity, duction and the verting power. The position of the near point should be determined then by comparing the strength of one muscle with its opponent, we can determine whether a certain muscle should be strengthened or whether its opponent should be weakened, and this will show whether surgical or non surgical treatment is indicated.

After a case has been grouped or classified we can follow definite procedures and obtain good results.

For simplicity, I wish to separate muscle troubles into five clinical groups, i.e.:

1. Imbalance between the intrinsic and extrinsic muscles of the eye (accommodative).
2. One muscle too weak (insufficiency).
3. One muscle too strong (excess).
4. Combinations of groups 1, 2 and 3.
5. Paralysis (partial and complete).

The pictures illustrate the various groups and the treatment for that condition follows each picture.

PICTURE I. ILLUSTRATING GROUP NO. 1
DOROTHY, AGE 7 YEARS

When the condition is first discovered we bandage the fixing eye to compel the patient to use and develop the other eye. Or one may use ½% atropin to blur vision in the fixing eye, to force development of the poorer eye. Glasses when needed should be worn as early as possible and constantly. Some patients will wear them at two years of age or even younger. When a little older ocular gymnastics should be started. This is accomplished by covering the patient's good eye and allowing them to play with various sized marbles, or dominoes which have small white spots, also jack straws. Suspend small rubber ball from the ceiling and let them play with it by striking and catching it. They may cut various sized pictures from magazines. Any game requiring good vision and causing eye ball to rotate, thereby increasing the strength of the muscles and

*Pictures were shown before the Eye and Ear section of the State Medical Association at Shawnee, May, 1930.

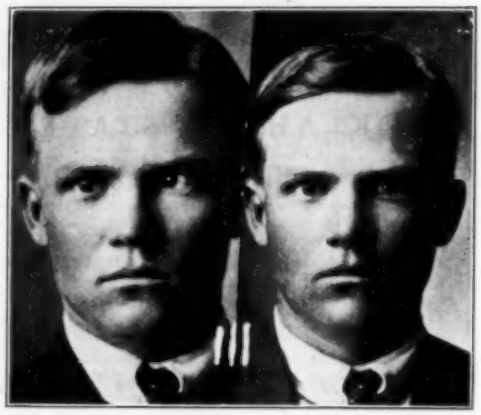
increasing the acuity of vision, is recommended.

As soon as age and intelligence permits, the stereoscope and amblyscope should be used. Fusion training is a long, tedious procedure, requiring many months and an occasional word of encouragement to the patient from the family physician will help greatly in accomplishing the desired result.

This patient was three years of age when treatment was started and a strong plus lens was required to correct the deficiency of the ciliary muscles, thereby balancing the intrinsic with the extrinsic muscles, which gave the patient binocular single vision.

PICTURE II. ILLUSTRATES MUSCULAR WEAKNESS OF GROUP NO. 2

When glasses, drugs and ocular gymnastics fail, then we operate. Children should be operated before the sixth or eighth year of age, to prevent monocular blindness and allow them to enjoy binocular single vision. This can rarely be accomplished after the first decade, however, for cosmetic results, an operation is indicated at any age. Patient age 7 years. Had an insufficiency of external rectus, allowing the eye to turn inward. A six mm. tucking was done on the weak muscle. This is a very good operation, especially for children, bacause the muscle is not severed, nor is the thin, elastic young sclera stitched, which makes the operation fool proof and the results are very definite and gratifying. We prefer a graduated tucker and use No. 1 white braided silk thread and allow stitches to remain at least a month, or indefinitely. Three stitches are used and the middle stitch is tied first to prevent vertical deviation. See that the knots do not lay on the sclera.



PICTURE III. ILLUSTRATING GROUP NO. 3

Patient, age 15 years. Internal rectus too strong (convergence excess).

A recession (setting insertion back) of 5 mm. of left medial rectus muscle was done to lessen the pulley action on the eye ball.

The muscle, at its insertion is severed and allowed to slide back and is held in contact with the sclera at its new insertion by passing thread through superficial layers of the sclera, at the desired point, then anchored by same stitch extending to the stump of the original insertion. If the muscle is not fixed after doing a complete tenotomy the results are uncertain and in later years the eye usually deviates in the opposite direction to that which originally existed.

PICTURE IV. ILLUSTRATES THE FIRST THREE GROUPS

Patient, age 5 years, required a recession of both medial recti of 4 mm. each to lessen their excessive action, and two months later a tucking of the right lateral rectus of 6 mm. to increase its action and glasses were required to make up for the deficiency of the ciliary muscle. The above three procedures gave binocular single vision.

PICTURE V.

Patient, age 50 years. Right eye blind. A 7 mm. tucking of right medial rectus, and six weeks later a 4 mm. recession of the right lateral rectus was done. This gave good cosmetic results.

PICTURE VI.

Illustrates paralysis due to lues. Paralysis due to constitutional troubles, as lues, hemmorrhage, etc., should be treated according to the etiology. This patient, age 45, was corrected by early anti-luetic treatment. Luetic cases that are are allowed to go untreated for any length of time will usually require treatment and be followed later by an operation.

PICTURE VII.

Illustrates partial paralysis in group No. 5. Patient, age 15 years, suddenly saw double while at school. She developed a concomitant squint and wore a cover over one eye for two years to prevent double vision. The internist's report was negative. There being a weakness of the right external rectus, a strengthening operation was done (6 mm. tucking) which gave her binocular single vision.

PICTURE VIII.

Illustrates complete paralysis in group No. 5. Patient, age 30 years, had a flaccid paralysis. Internist's report was negative. In this type of case, we must substitute normal muscle for the paralyzed one. The outer portion of the left superior and inferior recti tendons were substituted for the paralyzed left lateral rectus, which gave good cosmetic results and binocular vision, nearly to the center of the field of lateral rotation.

To relieve tension, the upper and lower sutures should be tied together after anchoring, this will prevent one suture from tearing out and allowing vertical deviation.

SUMMARY

1. Start treatment when condition is first discovered, as early as eighteen months, if possible.

2. Strenghten the weak muscle, weaken the strong muscle.

3. Tucking and recession operation, suitable for all cases, especially children.

4. Operate before eight years of age if possible.

5. Complete physical examination and treat the cause.

6. A complete set for charting and diagnosing a deficiency of each ocular muscle, will be sent upon request.

THE ETIOLOGY AND PATHOGENSIS OF ACUTE DIFFUSE GLOMERULAR NEPHRITIS*

E. RANKIN DENNY, M.D.
TULSA

Since the first detailed description of the early lesions of acute diffuse glomerular nephritis and the recognition of the association of streptococci in this disease by Lohlein[1] in 1907, knowledge concerning its etiology and pathogenesis has made remarkable progress. Volhard and Fahr[2] observed that one-fourth of all the nephritides associated with infection followed tonsillitis, and three-fourths of all their collected cases were associated with or followed upper naso-respiratory infections. Longcope et al[3] made a detailed study of the relation of infection to the onset and progress of acute and subacute diffuse glomerular nephritis. Reference will be made to this work in which it was shown the high incidence of infection of haemolytic streptococci coincident with or preceding the urinary manifestations of acute nephritis. Successful attempts to produce experimental glomerular nephritis have been made by Ophuls[4] who injected intravenously cultures of streptococci. Long and Finner[5] have also produced glomerular nephritis by intrarenal injections of tuberculin.

It would scarcely be profitable in a paper of this sort to refer in any great detail to the many studies that have been made in attempting to produce nephritis experimentally or discuss all of the experiments which have formed the basis of the various hypothesis advanced on its pathogenesis. It will suffice to say that there are three theoretical considerations of the mechanisms involved in the pathogenesis of acute diffuse glomerular nephritis.

First, Kuczynski[6] has suggested that the diffuse form of glomerular nephritis may in some instances be caused by the transportation of streptococci to the kidneys where they are engulfed by the cells lining the glomeruli and there set up a diffuse progressive inflammation. However, the fact that the blood and urinary cultures are sterile and the inability of pathologists to demonstrate organisms in the glomeruli is sufficient evidence to jeopardize the rationale of this idea. If this was the method by which diffuse inflammatory lesions of the glomeruli were produced, one would expect a similar picture in all cases of sub-acute bacterial endocarditis. But the renal lesions commonly found in sub-acute bacterial endocarditis are in the form of a focal glomerular nephritis with only a relatively few glomeruli involved and without any clinical evidence of an acute renal insufficiency.

The second hypothesis is that advanced by Schridde[7]. It is his idea that diffuse glomerular nephritis is caused by a toxin produced by streppococci or other bacteria in a focus of infection distant from the kidney. One would conclude from most of the literature that the writers believe that the renal lesions are produced by continuous or recurring blood stream toxins formed in a focus and injuring the glomerular cells in the process of elimination. But the work of Trask and Blake[8] of Yale University Medical School suggests strongly that there is one other important factor necessary for the development of renal lesions. They clearly showed that a toxic substance can be isolated from the urine of patients suffering with scarlet fever, a disease in which the prototype of diffuse glomerular nephritis is manifested. This urinary substance is neutralized by human serum that blanches the rash of scarlet fever, presumably scarlet anti-toxin, but not by human serum that fails to blanch the rash. Now these cases of scarlet fever were not complicated by nephritis. In other words there was no clinical evidence of renal injury in these cases in which a toxin of streptococci scarletinae was present in the urine. This is conclusive evidence that in scarlet fever some other factor in addition to urinary toxin must be present to facilitate development of acute diffuse glomerular nephritis. Furthermore, it has long been observed that the occurrence of scarletinal glomerular nephritis does not seem to have any direct relation to the severity of the disease, very mild cases as well as severe ones being subject to it.

The mechanism of the pathogenesis of acute diffuse glomerular nephritis is most admirably explained by Longcope[3]. He believes that the lesions occur as a manifestation of an allergic reaction, which is to say that the renal cells must have been previously rendered abnormally susceptible to the products of bacterial growth. This is supported by his observations on the effect of intravenous injections of foreign proteins with resultant renal changes comparable to the lesions of ne-

*Read before the Oklahoma State and Tulsa County Medical Societies.

phritis in man. Before discussing the clinical facts supporting this view it seems important to note that lesions of the glomeruli have been produced by a true tuberculin reaction.

Long and Finner[5] perfused the kidneys of swine with tuberculin made sensitive to this protein by having previously produced a localized lymph nodal tuberculosis, using human type tubercule bacilli. They were able to produce a diffuse inflammation of the kidneys that may be properly considered an acute glomerular nephritis. "Moreover this effect is the result of a true tuberculin reaction, as it does not occur following the perfusion of the kidney of a non-tuberculous animal with tuberculin. . . . The immediate reaction in the kidney is followed by a subsidence of acute manifestations, and absorption and proliferative organization of the exudate. Many of the glomeruli in this stage show the epithelial and endothelial stimulation and growth seen in 'acute proliferative glomerulonephritis,' or subacute glomerulonephritis. True epithelial crescents are occasionally seen. . . . . When the injury is bilateral, a moderate nitrogen retention develops." Thus it is seen that one variety of acute glomerular nephritis may be produced by perfusing the kidney with a protein after having rendered the animal allergic by a previous inoculation with that protein.

In 1927, before the Association of American Physicians, Longcope, O'Brien, Hansen and Denny[3] reported their study of 40 cases of acute and subacute diffuse glomerular nephritis, over a period of from one to four years. It was noted that there was an occurrence of acute infections in thirty-four patients, an incidence of eighty-five per cent. Tonsillitis occurred in fifty-three per cent of the cases, while infections of the accessory nasal sinuses and respiratory tract were found in thirty-two per cent. Furthermore, in eighty-one per cent of these infections the predominant organisms recovered were haemolytic streptococci of beta and alpha types. A significant observation was the fact that the progress of the nephritis bore a direct relation to the persistence of the infection. There were twenty-seven cases that could be followed more or less continuously over a long period of time. Fourteen of these cases recovered completely from their attack of acute nephritis, and in the remainder the disease definitely progressed or terminated fatally. A study of the naso-pharynx and tonsiller fauces of the group that had apparently recovered revealed the fact that ninety per cent were free of infection and the infecting organism originally isolated. Furthemore, with exacerbations of the disease there coexisted a recurrence of the respective infections. In the remaining group (twelve cases) in whom the disease progressed to a chronic state or terminated fatally, the infection and the infecting organism persisted in ten, an incidence of eighty-three per cent.

A study of the skin reactions to filtrates of haemolytic streptococci in acute and subacute diffuse glomerular nephritis was conducted by Hansen-Pruss, Longcope, and O'Brien[4]. That there is a high degree of tissue sensitivity in this group of cases there can be little doubt. Results of skin tests using high dilutions (1-500 and 1-2000) of filtrates of haemolytic streptococci isolated from foci of infection in these nephritic patients show that eighty-one per cent gave positive skin reactions. The control group of normal and patients suffering from uncomplicated acute tonsillitis showed positive skin reactions in only twenty-five and eighteen per cent respectively. In the latter group the skin sensitivity was lost following recovery from the acute tonsillitis. These skin reactions which produce a local tissue response comparable to the well known tuberculin intradermal test mean that in cases of acute and subacute diffuse glomerular nephritis there exists an allergic state, an abnormal tissue susceptibility to the products of bacterial growth.

SUMMARY AND CONCLUSIONS

Haemolytic streptococci are the cause of one form of acute diffuse glomerular nephritis. The significant factor determining recovery from the acute attack or progression to a chronic state is the disappearance of or persistence of the infection and the infecting organism.

The high percentage of skin reactions obtained by injecting the toxic filtrates from the haemolytic streptococci that were isolated from the foci of infection indicate that these patients are abnormally susceptible to the bacteria or the products of their growth.

There is much evidence to show that the lesions of acute and subacute diffuse glomerular nephritis are not produced by actual invasion of the kidney and that some factor other than "toxemia" must exist to facilitate development of the above mentioned type of renal disease.

The animal experiments and clinical observations support the idea that acute and subacute diffuse glomerular nephritis develop in those whose kidney cells have been rendered hypersensitive to the haemolytic streptococci.

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For charts shown see reference No. 3.

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INTRAVENOUS UROGRAPHY*

JOSEPH FULCHER, M.D.
TULSA

There is, perhaps, no branch of medicine as well developed today as urology. Yet as a specialty it is one of the youngest. It owes its very existence to the cystoscope and X-ray. As early as 1906 Voelker and Von Lichtenberg suggested the use of a halogen compound in urography. Various solutions were tried and it was found that the halogen compound had radiopaque qualities second only to barium and bismuth. At first 25% solutions were used which caused much irritation. This was finally reduced to an isotonic solution of sodium iodide, which is 12½%. The hope was always maintained of developing a technique whereby one could give a compound intravenously, by mouth, or by rectum, which would render the urinary tract opaque. This hope has only recently been fulfilled, and intravenous urography is now definitely established. This causes a division of urography into two types—intravenous urography and retrograde urography. It is with intravenous urography that we are chiefly concerned in this paper. It is interesting to note that intravenous urography was first done in 1923 and that Graham and Cole introduced their method of cholecystography in 1924. That the dyes used in cholecystography are phenol-tetraiodophthalein containing 60% iodine, while the compound used in intravenous urography is sodium salt of 2-oxy-5 iodopyridin-n-acetic acid". The phthalein radical showing a predilection for gallbladder excretion, while the urea radical shows a predominant renal excretion.

Braasch states that in 1923 Rowntree, Osburn, Sutherland and Shaw of the Mayo Clinic, were the first to show that the renal pelvis and the bladder could be outlined following intravenous injections of large doses of sodium iodide. He desires that they receive full credit for the demonstration of intravenous urography[1]. Sodium iodide was used in 1924 in Germany by Von Lichtenberg and Rosenstein, using perirenal pneumoradiography. The results of these early American investigators in the field of intravenous urography did not warrant the continued use of sodium iodide. Rosenow, in 1929, used a compound made by combining urea with sodium iodide which he called pyelognost. Swick, a few months later, introduced the compound known as uroselectan, while on assignment to work on the service of Prof. Lichwitz in Altona, Germany, he began the work on uro-selectan. This compound was the direct offspring of selectan neutral which had been synthetized by Prof. Binz and Dr. Raeth originally to combat coccus infection on the service of Dr. Lichwitz. Having discovered that 90% of it was excreted by the kidneys, it was decided to try its radiopaque qualities on animals. It was found that .6 gm. per kilogram body weight could be intravenously administered to animals without any demonstrable ill-effects and that it was rapidly execreted by the kidneys. Dr. Swick continued his investigation on the service of Dr. Von Lichtenberg in Berlin where 700 cases were worked up and reported. The compound uro-selectan is a derivation of selectan neutral, the name of which is being changed to iopax. It is an iodinpyridin combination with an iodine content of 42%[1]. It is a yellowish, fluffy powder over 50% soluble in water, neutral in reaction and produces a light brown solution. It is a very stable compound and originally it was stated that the iodine component could not be demonstrated in the circulating blood.

*Read before the Tulsa County Medical Society, January 26th, 1931.

Tourne and Damm have shown this to be incorrect. The free iodine radical can be shown to be present as late as ten hours after a 60 gm. dose. Stools and sputum of the patient injected show the presence of free iodine in small amounts. It can be demonstrated in the stool three to four days after the injection. It has also been demonstrated in the skin of rabbits injected intravenously.

It has been shown that 90% of the injected substance is eliminated during the first two hours through the kidneys. In parenchymal disease of the kidneys there is a decrease in excretion falling to 40% or lower. This causes the liver and intestines to have to take up the function of excretion of the drug. In such cases it is wise not to repeat the dosage. About 70% of the injected substance can be recovered from the urine by acidifying and obtaining the insoluble acid salt. This practice is in use at some of the larger clinics where they recover and use the uroselectan over again. If uroselectan is not readily excreted by the kidneys, it is slowly excreted by other organs, chief of which is the liver. During this time, it is not circulating in the blood, but is stored for the most part in the skin. It is principally through the glomerulus that uroselectan is eliminated, thus in the renal diseases of the glomerular type there is more likely to be a retention of the substance. In tubular damage one will get good pictures up to a late stage of the disease, but as a rule the more normal the kidneys the clearer the picture.

The specific gravity of the urine begins to rise soon after injection of uroselectan. It forms the basis of the combined renal function test; normally the specific gravity rises to 1.050 and 1.060 and then falls to 1.030. The highest specific gravity does not occur at the time of the maximum output of uroselectan, as one would suspect, but occurs 1 to 3 hours later when the greatest concentration of uroselectan has passed.

Urologists differ as to when intravenous urography is indicated. The question is not settled for specific conditions and it is possible that it will not be settled until we have a more efficient compound than uroselectan. Arbitrarily one can say that intravenous urography is indicated when retrograde urography cannot be performed, due to pathological or anatomical conditions in the genito-urinary tract, and retrograde urography is contra-indicated or inconvenient". These include infants and children, carcinomatous conditions of the bladder or other areas causing obstructions, hemorrhage, where for any reason the ureters cannot be catheterized, cases where retrograde urography does not give any definite information, transplanted ureters, questionable ruptured kidney, extrophy of the bladder, and other congenital malformations and acute diseases of the adnexa, also as a post-operative method of checking up on urological plastic surgery.

The original technique of Rowntree and his co-workers required an intravenous dose of one ounce of sodium iodide in solution. Because of the free iodine and the ease of obtaining iodism, this method was dropped. The present technique, as advocated by Swick, consists in dissolving 40 gms. of uroselectan slowly in 110 c.c.s. of warm distilled water and filtering the solution. This solution is boiled twenty minutes in a double boiler or autoclaved at 15 lbs. pressure for twenty minutes. The solution is then given at body temperature by syringe or gravity method. I have seen both methods used and prefer the gravity method, taking about fifteen minutes for the solution to go into the vein. Oral and rectal administration do not give results with any of the compounds in use at present. The preparation of the patient is as for any other roentgen examination of the urinary tract. One plain flat plate of the kidneys, ureters and bladder is made before the injection. The roentgen study may be a serial, or functional study, or it may be anatomical. The serial study is the one most generally made, one plate being taken 15 minutes after completion of the injection, another at the end of forty-five minutes, and a third at the end of two hours for comparison and as a test of functional excretion.

Compression with a hickey bag is suggested and used routinely in many clinics. The bag is placed just above the symphysis pubis and pressure applied just to where the patient feels uncomfortable. The patient's bladder is emptied by catheter, or by voiding, and the bag is applied ten minutes before each exposure". Liquids must be withheld so that the iodine compound may be excreted in a concentrated form.

Although uroselectan gives us one more method of kidney function, yet minor disturbances cannot be evaluated by this method. In making urographic interpretations one must keep in mind not only the anatomy but the pathological physiology of the genito-urinary tract, else he will be

finding defects which will prove to be pitfalls. By this method one has for comparison, by intensity, the relative function of the two kidneys, one can thus decide which appears to be the diseased side, or, which is the more involved of the two.

Von Lichtenberg and Swick reported that in 75% of their cases the intravenous route was satisfactory for diagnostic information, while the cyctoscope had to be resorted to in the remaining 25%.

By the intravenous route one can study the mechanics of the ureter, one can observe peristalsis, diagnose displacement of the ureter as well as a double ureter, looping, or stricture, of same.

The best plates are usually obtained in the cases of hydronephrosis and hydroureters. In unilateral involvement the side affected usually is quite discernable from the normal side, or if one side is affected more than the other the difference is significant. In cases of urinary calculi the method shows at once whether or not complete or partial obstruction is present[1]. There is often an intensification of the shadow of the stone. In the case of obstruction from a stone in the ureter, there is often an intensification of the kidney shodow[2].

Tuberculosis of the kidney is a much discussed question; first, in the case of retrograde urography, whether to catheterize the affected side and obtain a pyelogram or to prove the other kidney normal? With the newer technique there is still a question as to whether or not one should give uroselectan in the presence of tuberculosis on account of its high iodine content.

In intravenous urography we have a new method of urinary tract investigation. We must also acquire a new idea of roentgen interpretation, for in this method we study the urinary tract in diastole[3]. We can look forward to the solving of many problems, one of which is the "phantom strictures and kinks" of ureters.

In regard to kidney function alone, there are yet many problems to be solved —such as the relation of urea excretion to that of uroselectan, whether or not, under certain conditions, there is an inhibition of the excretion of uroselectan where phenolphthalein would be readily excreted.

Hyman reports over one hundred cases on the services of Mt. Siani Hospital, New York, without any unpleasant manifestations[4]. Hirsch[11] states that iodism has never occurred. However, several authors do not hesitate to say that in the present state the process is not without danger. Caulk reported one death following its use, Kretschnser[5] reports one death several days following the second injection of uroselectan.

During the injecting of the solution there is commonly a feeling of warmth, flushing of the face and pain along the course of the vein in which it is injected. There may be a marked diarrhoea soon after the injection in cases with low renal function. Swick reports venous thrombosis in eight cases at the site of injection.

If the phenolsulphonthalein is low, the blood urea high, and the indigo carmine excretion low, and the concentration tests of kidney function show altered kidney function, one is advancing at great danger to use this method. Where the blood urea is high and the concentrating power of the kidney poor, the method yields very poor data and is attended by danger[11]. Blood urea and phenolphthalein determinations are not expensive, yet they give us valuable information as to whether or not to proceed with this and like substances.

Any case bordering on uremia, as determined by adequate clinical tests, should not be subjected to intravenous urography. The use of such a large amount of iodine in the presence of tuberculosis has not yet been proved safe. In the case of hyperthyroid patients it has been shown that the drug is unsafe.

Because of the fact that the liver may be called upon to excrete the uroselectan in case there is insufficient excretion by the kidneys, one should never use this compound in cases of impaired liver function.

One may expect a good picture only when the kidney function is satisfactory[3]. The intensity is dependent upon the function of the kidney.

In the case of double-sided or cardiorenal conditions, the clinical results are very poor, or negligible. The intensity of the urographic shadow is directly dependent upon the kidney threshold of uroselectan. Five percent is the maximum concentration of excretion and this will not, under any ordinary circumstances, compare with 12.5% sodium iodide, which is used in retrograde pyelography. Even with normal kidneys one cannot expect the intensity of shadow which one would get with sodium iodide of 12.5% or 25% uroselectan used in retrograde pyelography.

In a damaged kidney the radiographic shadow is much less intense.

It hardly seems possible that intravenous urography should replace the older method because with the intravenous method one cannot determine the source of blood, pus, bacteria, etc. Catheter pyelography still remains the method of choice because where we need a contrast media most is in a poorly functioning kidney which cannot excrete uroselectan in sufficient concentration. We will still have to resort to the catheter in the segregation of urine.

At the meeting of the American Urological Association in June, 1930, the concensus of opinion was that in the perfection of intravenous urography a diagnostic aid has come into use the value of which cannot be estimated at the present time.

At the present we are looking forward to the use of better compounds, one of which is "skiodan," now under investigation. The newer method does offer, first, a radiopaque substance which is excreted 90% by the kidneys in a short time; second, a relative functional test, and third, a method of study of the physiological function of the urinary tract.

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NEPHROPATHIES

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The term "Nephropathies" is meant to include all conditions of the kidney in which there is departure from normal. During the past five years, in the Department of Pathology of the University Hospital, we have examined, both grossly and microscopically, kidneys from two hundred seventy-six patients which have come to autopsy. These cases have had complete histories, physical and laboratory examinations and in addition, we have had the opportunity to examine and become familiar with the history and treatment before death. Consequently, we have tried to correlate the clinical picture with anatomical findings. In many of the cases, the renal findings were incidental, the patients having been treated for other more serious disorders.

It has been said by an eminent pathologist, "It is a poor pathologist who cannot make his postmortem examinations agree with his clinical diagnosis." This, in our opinion, is most certainly not true in regard to nephropathies.

Another eminent pathologist has said, "that the rarest type of kidney that we might select for a museum, is the normal adult kidney." This is true, because microscopical examination reveals certain minor conditions in the kidney so constantly, that we are inclined to think of him as physiological. This view is in keeping with the clinicians, because in most of our cases, careful histories and physical examinations, including complete laboratory tests, revealed something which pointed to pathology of the kidney. We admit that it has been most difficult, and in many instances, impossible to correlate the clinical picture with the necropsy report, but believe that the one great factor which has made it so difficult is that the teaching of the clinical classification and that of the pathologists has been too widely divorced.

Consequently, we are submitting a simple classification, one which is based, as far as possible on etiology.

NEPHROPATHIES

Anomalies	3.6%
Tumors	1.8%
Traumatic	2.3%
Inflammation:	
Nephrolithiasis	5.9%
Hydronephrosis	2.5%
Pyelitis and Pyelonephrosis	4.8%

Bright's Disease:	
Acute	4.8%
Chronic	8.9%
Chronic with Edema (Nephrosis)	0
Constitutional Diseases with Kidney Manifestations	59.5%
Normal	5.9%
	100. %
Mistaken Diagnosis	40 or 15.6%
Diagnosis Practically Correct	83 or 84.4%

Treatment is the aim in all cases and certainly, as a general rule, is most scientifically promoted if directed toward the etiology. Necropsies should be performed to learn the processes of disease which have occurred before death and simplify our study rather than to complicate matters by many pathological terms.

Almost as many different classifications have been submitted as have been authors who have written upon the subject, so it is not our purpose to submit still another classification, but instead, to mention the different types which will review briefly, some of the recent conceptions as found in literature and also review our personal conception resulting from these cases of postmortem examinations. The types of nephropathies are as follows:

Anomalies[1]: Of these, we have had 3 or .6% fused or horseshoe kidneys; 2 or .4% congenital absence of one kidney; 2 or .4% with one vestigial, non-functioning kidney; 3 or .6% congenital polycystic; several lobulated kidneys; and an uncertain number in which there appeared to be slight anomalies of ureters, pelves, or blood supply. We dismiss these briefly because, with the exception of one of these, a congenital polycystic kidney, there was no clinical evidence of dysfunction resulting from the anomalous condition.

Tumors[2]: 5 or 1.8% had neoplasms, two of which, were primary carcinomata, two metastatic sarcomata, and one, a lipoma of the capsule. Only one of these gave definite clinical or roentgenological evidence for sufficient diagnosis.

Traumatic[3]: 6 or 2.1% of all the cases which came to autopsy showed traumatic injury of one kidney and were diagnosed as such clinically. None of these showed injury of both kidneys. In one case, a man had jumped from the fifth story of a down town building and fallen on his head, the right kidney was broken entirely in two pieces. It is interesting to note that there was no external evidence whatever of any direct trauma in the region of the kidney.

Inflammation or True Nephritis[4]: These we have divided into two general groups:

Nephrolithiasis: Of which 16 or 5.8% of the two hundred seventy-six cases showed calculi in the pelvis. This class represents the greatest clinical and pathological disagreement of any class of abnormalities of the kidney. There was no diagnosis of calculi made in ten of these cases. In other words, the diagnosis was not made in 62% of the cases of nephrolithiasis.

Obstruction of The Ureter: Of these cases, there were seven of hydronephroses and thirteen of pyelitis, making a total of twenty or 7.1% in which there was dilatation of the pelvis with more or less inflammation of the kidney *per se*. Of these twenty cases only eight were diagnosed as such, or 60% in which the diagnosis was not suspected.

Bright's Disease or Occult Nephropathies[5]: This group is meant to include all of those types, the cause of which, is obscure or difficult to understand. These are usually called nephritis and sometimes called nephrosis. The term nephritis is not in the true sense representative of this condition because the changes in the kidney are probably more often degenerative than strictly inflammatory. This is the group of nephropathies which has given rise to most of the confusion in connection with classification. One text book on pathology mentions fifty different types of Bright's Disease. It is impossible for a student or a practicing physician to refer to even two text books which give the same classification. We have, therefore, found it most convenient to make use of a very simple classification as follows:

	Acute	Chronic	Chronic with Edema (Nephrosis)
Constitutional Symptoms	Always present	Mild or negligible	Mild
Edema	Considerable, especially of face	Slight or none	Considerable
Blood Pressure	Usually normal	Usually high	Normal
Urine Output	Diminished	Increased	Unimportant
Specific Gravity	High	Low and a tendency to be fixed	High
Albuminuria	Heavy	Slight or normal	Heavy
Casts	Many hyaline and granular	Granular or none	Usually granular
Red Blood Cells	Usually many	None	None
White Blood Cells	Often a few	None	None
P.S.P.	Unimportant	Decreased output of dye	Unimportant
B.M.R.	Unimportant	Unimportant	Decreased
N.P.N.	May or may not be increased	High in terminal stage	Increased globulin Increased cholesterin Decreased serum protein

Acute Nephritis: Of course this includes a large range of conditions which is somewhat different both clinically and in pathological findings, but briefly characterized by constitutional symptoms, edema, puffiness of the face, especially, diminution in urinary output, heavy albuminuria, high specific gravity, normal or increase in blood pressure depending upon the stage, usually many casts, usually red blood cells, and often, a few white cells. The nitrogenous salts of the blood may or may not be increased, but are usually so in severe cases or during the advanced stages. Functional tests, such as the phenolsulphonephthalein test and the concentration tests usually add no important information.

At autopsy the kidneys are heavier than normal, the capsule strips easily and the surface is injected, red and often granular. The cortex is thick, poorly differentiated from the medulla and its cut surface bulges. Microscopic examination shows a great variety of lesions and is usually classified by pathologists according to the predominating lesion. We are frank to admit, that it is often very difficult to decide exactly which portion of the kidney has been most severely damaged, whether it is Bowman's capsule, the glomeruli, the tubules or other portions. However, it is not difficult to determine whether the process has been acute or chronic.

Of the two hundred seventy-six cases, only thirteen or 4.8% fell in this group. Of these the diagnosis was partially correct in all and entirely correct in seven or 50%. The remaining 41% was incorrect in that they had been called chronic, when at autopsy, they appeared to be acute.

Chronic Nephritis: This includes a very large range of cases in which there are few constitutional symptoms, little or no edema, a tendency to increase in the output of urine, sometimes but not always casts, reversal of the day and night ratio, small amount of albuminuria or no albuminuria, low specific gravity and a tendency to fixation of the specific gravity. Blood pressure is usually high in advanced cases. The phenolsulphonephthalein test usually shows a decreased output of dye. The nitrogenous products of the blood are constantly high in terminal stages.

At autopsy we find a small kidney, an adherent capsule, granular surface, thin cortex, and an increase in pelvic fat. Microscopic examination shows a very wide range of conditions, including degeneration and fibrosis. Usually there are many scars, fibrosis of the glomeruli, and in the small white or contracted kidney, a predominance of interstitial type tissue. We believe that the interstitial type nephritis is an advanced stage in which there has been an unusual amount of sclerosis in the process of repair of previous damage, while again, we have found these conditions extremely difficult to classify because there is usually more or less damage to the various portions of the kidney and the difficulty arises in determining which is the most important.

Of the two hundred seventy-six cases examined, twenty-three fell into this group. With the exception of seven, all were diagnosed as such, making a correct diagnosis of 71 per cent.

Chronic Nephritis With Edema (Nephrosis): This includes a peculiar type of nephropathy in which there is a very definite clinical syndrome characterized by an insidious onset, marked edema, decreased basal metabolic rate, marked albuminuria, decreased blood proteins with relative increase in globulin, reversing the usual albumen: globulin ratio, hypercholesteremia and good phenolsulphonephthalein excretion. No increase in non protein nitrogen of the blood; casts, and double refractile lipoid droplets in the urine. Blood pressure normal. At autopsy, the pathology consists of degenerative lesions which are in keeping with the above mentioned lesions of chronic nephritis.

The condition of both children and adults was described by Munk, Volhard, Fahr, Epstein and others and was called nephrosis. By some, it has been called Epstein's nephrosis. Christian has recently summarized all of the cases of nephrosis with postmortem observations. There were eighteen such cases consistent with the diagnosis.

The term "nephrosis" as suggested by Muller twenty-five years ago, has recently been discarded by many foremost authorities on diseases of the kidney. Christian says "there seems to me to be no justification for regarding nephrosis as any other than a variety of kidney diseases, a form of chronic nephritis or Bright's Disease. While I can offer no objection to such a clinical term of nephrosis, I can see no advantage of it over the term chronic nephritis with edema." Doubtless the term is often used incorrectly in connection with cases which do not have the definite syndrome which accompanies chronic nephritis with edema.

None of the two hundred seventy-six cases here reported, and we can add, none of the five hundred cases which we have examined at autopsy have fallen into this group clinically.

Constitutional Diseases[5]: Richard Bright, Guy's Hospital, 1827, in his "Reports of medical cases," says, "There are evidences of organic changes which occasionally present themselves in the structure of the kidney and which, whether they are to be considered as the cause of the dropsical effusion or as a consequence of some other disease, could not be unimportant. We believe that this should also be the view point in nephritis, that is, to say, "the recent and more reasonable view point supported by newer experimental technique is that the clinical condition described in nephritis is a general or constitutional disease." The important damage is done in other tissues, especially liver, central nervous system, sympathetic and endothelial, and that nephritis is no more strictly renal disease than scarlet fever or syphilis are diseases of the skin."

CONSTITUTIONAL DISEASES WITH NEPHROPATHIES

Malignancies	32	Pellagra	3
Passive Congestion	24	Endocarditis	2
Peritonitis	18	Empyema	2
Misc. Acute Infections	17	Morphinism	1
Pneumonia	14	Wood Alchol Poisoning	1
Tuberculosis	13	Luminal Poisoning	1
Arteriosclerosis	12	Leukemia	1
Infarcts	11	Eclampsia	1
Senility	9	Dysentery	1
Meningitis	4	Encephalitis	1
Septicopyemia	4	Acute Cholecystitis	1
		Osteomyelitis	1

This view is supported by the fact, firstly, that the picture of nephritis has not been produced experimentally by renal damage, and secondly, that bacterial toxins and chemicals which produce nephritis experimentally are tissue poisons and do general damage as well as local.

Normal[7]: Of the two hundred seventy-six cases, sixteen or 5.9% showed no definite evidence of any pathology. Of these, eight were less than one year of age, five less than two years, and one each of eight, sixteen, and thirty-eight years. It may be of interest to note that the latter who was thirty-eight years of age, met a sudden accidental death.

CONCLUSION

1. Nearly all adult kidneys show pathology at autopsy.

2. Nephrolithiasis, hydronephrosis, and pyelitis are frequently unsuspected, even in hospital cases.

3. Bright's Disease is not a local disease, but instead, in most of the diseases, is the consequence of some constitutional disorder.

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SIGNIFICANCE OF LABORATORY TESTS IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS.

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The interpretation of laboratory tests in syphilis covers a field too extensive to be gone over thoroughly in a short time. It is my intention therefore merely to touch a few points that may be of general interest. The tests to be considered are: the darkfield, the Wassermann and Kahn and the spinal fluid cell count and colloidal tests, especially the colloidal benzoin.

These tests are in such common use that any further discussion of them may seem useless repetition. Ideally, their interpretation should be a simple matter: a positive darkfield or positive Wassermann should indicate unquestionable syphilis; a negative darkfield or negative Wassermann should eliminate it finally as a diagnostic possibility. But in fact it is not altogether so simple: the positive Wassermann may not mean syphilis; the single negative Wassermann or negative darkfield is of no value whatever in ruling it out.

In every case in which these tests are to be evaluated it is important and necessary to make a thorough clinical examination. This includes a careful history, taken with emphasis on the points likely to bring hidden syphilis to view and a close scrutiny

of the patient's person for signs of syphilis. It is necessary to look carefully at the mucous membranes of the mouth and throat and at the skin of the entire body, especially the borders of the scalp, the genitalia, the perianal region and the palms and soles for active lesions or scars of syphilis. The presence of enlarged lymph nodes must be sought for; the eyes must be examined for keratitis, the nasal septum for perforation, the upper central incisors for Hutchinsonian pegging, the abdomen for tumors, especially gumma of the liver and the tibiae for periostitis. Signs characteristic of late neurosyphilis also must be looked for. No examination of a patient for syphilis is complete without such a careful going over. Laboratory tests can not be accepted as final unless supported by clinical evidence or until repeated checking has reasonably proved their correctness. These points have been made so often in the past that I would feel like offering an apology for bringing them up again if I were not aware of the persistent human tendency in most of us to consider tests and diseases instead of individuals.

Since the clinical examination is indispensable to proper interpretation of the tests for syphilis, it is apparent that the responsibility for the interpretation rests with the clinician. The laboratory technician as accurately as possible performs the test and reports its outcome but he should not be required to make decisions as to the meaning of the test for the patient. That remains the prerogative of the clinician and he should not allow himself to fall into the easily formed habit of depending on the laboratory man in doubtful cases.

Cases are largely individual and as well in syphilis as in other conditions fixed rules that will invariably apply cannot be laid down. In different combinations with each other and with the clinicial findings tests for syphilis may have a different significance. For this reason it would probably be more accurate, in illustrating the interpretation of these tests, to consider hypothetical cases rather than to make rules.

Before going ahead with these, it would be well here to review one or two details about Kolmer, Wassermann and colloidal benzoin reports. The Kolmer technic of doing the Wassermann is more dependable than any other and is now in general use. Tubes are set up in series of five. Reactions are reported from 0 to 4 in each tube, the negative reaction being reported 00000 or - - - - - and the most strongly positive reaction 44444. The colloidal benzoin test is used in place of the colloidal gold. It has the advantage of being simpler and more dependable. In addition it has a rather special value in neurosyphilis. Fifteen tubes are set up and the reaction in each is reported in degrees from 0 to 3. Precipitation in the first four tubes is considered a "first zone" reaction and is the only reaction of practical significance.

As a first case for example, imagine that a man of thirty-five has a small slightly indurated lesion on the penis. He says it is just a scratch but that it has been there two weeks and does not seem to be going away. Careful search for other lesions of syphilis reveals nothing. A darkfield test is done without finding spirocheta pallida. Is the lesion syphilitic? From this single test it is impossible to draw a conclusion. A negative darkfield never means anything except that spirocheta pallida cannot be found in the particular specimen of serum used for the test. A second or third darkfield may be positive and should be done; in fact it is a good plan to make two or three slides routinely at each examination. The lesion should not be interfered with in any way until repeated darkfield tests have been made several days apart. Suppose that the blood Wassermann is taken and is found to be negative. With this finding and the negative darkfield it might be a temptation to dismiss the patient as non-syphilitic. But the investigation should not be stopped here. The blood Wassermann is untrustworthy and is of much less diagnostic value than the darkfield during the early weeks of the primary phase of the disease; in fact it is negative about two-thirds of the time. Nevertheless it should be taken, for it might be strongly positive even as early as this. With no evidence, then, to indicate the presence in this case of syphilis, what is to be done next? Ideally it would be best to repeat the darkfield daily or every other day for about a week, the patient meanwhile using saline wet dressings on the lesion. If it is impracticable to do several darkfields, at least one more should be done several days after the first. Suppose the second darkfield shows spirochetes. It would be correct now to go ahead with treatment for syphilis, unless there should be any reason to doubt that the spirochetes actually are those of syphilis. If it cannot be determined positively that the spirochetes are those of syphilis it

would be better to wait for the blood Wassermann to become positive before starting treatment. Suppose, instead of being positive, that repeated darkfields and a blood Wassermann are negative. Would it be proper in such a case to ignore the tests and go ahead with treatment for syphilis if the lesion is clinically typical of a syphilitic chancre? Treatment never should be given on such grounds alone. It is impossible even for the most experienced syphilologist to be sure merely by inspection that a chancre is syphilitic, unless other lesions of early syphilis can be demonstrated on the body. Even then it is better to make sure by getting a blood Wasserman test, for it is during the secondary stage of the infection that the Wassermann reaches its highest dependability, being strongly positive in nearly 100% of cases. If the Wassermann should be negative in spite of suspicious cutaneous lesions it would be well to repeat it, possibly in a different laboratory as a check. Suppose our patient's Wassermann becomes strongly positive a week or ten days after the first test is taken and that he is given eight or ten weeks of treatment. Another Wassermann is done at the end of that time and is negative. This test is not in any way an indication that the patient is cured and that he can be dismissed. He *may* be rid of the infection if he is unusually lucky but the Wassermann is no index of whether he is or not. Too much confidence must not be placed in the Wassermann at this stage, although its reversal to negative is a favorable sign. It is time, rather, to give our attention to the nervous system by testing the spinal fluid. Perhaps it may seem a little early to be bothering about this, for neurosyphilis is generally thought of as a late complication occurring after the disease has gone untreated for years. It is true that neurosyphilis as the neurologist sees it *is* a late manifestation. It *is* true that neurosyphilis usually is *not discovered or given attention* until years have gone by since the onset of the infection or until serious damage to the nervous system manifests itself in clinical signs and symptoms that we can see. The reason for this is that spinal fluid is not often enough tested in the early phases of syphilis. Many a hopeless human wreck, suffering the terrible pains of tabes, or the anguish of gastric crises, or groping in the perpetual dark of blindness might still be as active and capable as formerly if his spinal fluid had been examined early in the course of his infection. For it is a fact that these late ravages of the disease can be prevented by proper treatment given in the early years. It is grossly negligent to wait for symptoms to appear. Involvement of the nervous system by syphilis occurs early in the course of the disease or not at all. Within the first few months there will be some indication in the spinal fuild of central nervous system involvement in the great majority of those who eventually have it. The spinal fluid should be tested early, and in every case. No weak arguments should be accepted in refusal. It is the physician's responsibility to safeguard the patient's future in spite of objections. Suppose the report of the spinal fluid test in this case to be: 'Wassermann negative." From this finding alone it would be impossible to tell whether or not the patient's nervous system has escaped infection. It is necessary to have a cell count, which, to be accurate, must be taken within an hour or so after the fluid has been drawn. Suppose the cell count had been made and reported as 10 per cu. mm. Such a count would mean early neurosyphilis, in spite of the negative Wassermann. Any count above 5 at this stage is to be looked on with suspicion and 8 or 10 means definite infection. The patient is given ordinary treatment for six or eight weeks (no special type of treatment is necessary here, for in most cases these mild early infections of the nervous system clear up under treatment with arsphenamine and mercury). At the end of this time the blood Wassermann is strongly positive and the spinal fluid shows: Wassermann 444311 (anticomplementary) cells 325, colloidal benzoin 233,332,210,000,00, i. e., a first zone reaction. (These and the following tests are taken from an actual case). *The anticomplementary spinal fluid Wassermann always is equivalent to a strongly positive one.* Anticomplementary blood tests either may mean syphilis or be of no significance. The cell count of 325 and the first zone benzoin, taken separately, might suggest septic meningitis and paresis but in this particular combination probably mean very active meningeal neurosyphilis. Ordinary treatment does not seem to be accomplishing much in this case. Suppose it is now combined with intraspinal treatments and that after a course of these followed by mild treatment with mercury or bismuth given periodically for five or six months, the tests are taken again. This time the blood Wassermann is negative and the spinal fluid surprises us with the following: Wassermann negative, cells 4, colloidal benzoin 121 003 331 000 000. So

far as the Wassermann and cell count indicate, the man is cured and can be dismissed. In order to be as sure as possible of this, the patient is given a course of arsphenamine and mercury and in six weeks his spinal fluid is re-examined. It shows: Wassermann negative, cells 127, colloidal benzoin 011 003 331 000 000. This return of the high cell count indicates that the infection is of the stubborn relapsing type. The value of the colloidal benzoin also is demonstrated. The failure of the first zone reaction to disappear after other factors of the spinal fluid test have returned to normal is a warning that the infection may not have subsided completely and that the fluid must be checked again. Thus far, ordinary treatment measures have failed and resort must be had to malaria. The patient is given a course of chills and after four months the spinal fluid findings are: Wassermann 44431, cells 134, benzoin 123 113 333 100 000, a further relapse. By continuing fever and other treatment we are able to reduce this in a period of two years to: Wassermann 321—, cells 4, benzoin 000 033 333 320 000. For the first time, the reaction has disappeared from the first zone of the benzoin. Taken with the clinical findings, which are favorable, the laboratory tests probably indicate that the patient is at last on the road to health. Notwithstanding this, it will be necessary to be on the lookout for relapse and to recheck the patient's spinal fluid periodically for many years.

Now presume another case. A woman of 28 has not been feeling well for two years. She is under weight and feels weak. A routine blood Wassermann was done in her case a year ago and found to be strongly positive. She has been given three courses of treatment with arsphenamine without improvement in health. A careful examination for clinical signs of syphilis is negative. A blood Wassermann is done and is reported: "4 plus." The spinal fluid shows: Kolmer 44441, cells 1, colloidal benzoin 001 033 200 000 000. The persistent and very strongly positive Kolmer test in itself suggests resistant neurosyphilis, especially when the cell count is normal. The outlook might be better for her if the cell count were high with this Wassermann. Notice the very slight suspicion of a reaction in the first zone of the colloidal benzoin—it may mean impending paresis. Ordinary treatment measures must not be dallied with. There are as yet no clinical signs of damage to the nervous system and we have our best chance now to prevent it. After a course of intraspinal treatments and a rest period of a few months there is no real change in the spinal fluid. Fever therapy must be used and the patient is inoculated with malaria. Four months later she has gained 25 pounds in weight and feels like a different woman. Her spinal fluid shows improvement: Wassermann 433 - -, cells 2, benzoin 000 003 320 000 000. Again, after a rest period of eight months it shows: Wassermann 41---, cells 2, benzoin negative. Does this spinal Wassermann mean activity still in the nervous system? It is impossible to be sure but we suspect that it does. The patient is now given mild treatment and in a year both the blood and spinal tests are negative. But that does not mean the patient is cured. On rechecking in a year, the blood Wassermann is negative. The spinal fluid test shows: Wassermann 31---, benzoin negative. Does this spinal fluid Wassermann indicate a return of the active disease process? Very probably not. It may have shown the same reaction if it had been taken the day after the previous one a year ago. *Such fluctuations are every day occurrences. It is the series of tests done over a long period of time that guides us in the treatment of syphilis. Single tests often have very little value.* After a year of treatment with mercury or bismuth the spinal fluid is completely negative and remains so consistently for three years. Now the patient can be given reasonable assurance that she is well, but should be told to return for check-up in two or three years to be sure of it.

A man of 40 in good general health recently has been troubled by transient diplopia and has noticed one pupil larger than the other. Examination of the eyes shows the left pupil to be larger than the right and it does not react to light. The right pupil is normal. There are no other physical signs of disease. A blood Wassermann is done and is negative. On being repeated it is reported negative again. But syphilis is not yet ruled out. A spinal fluid test is done and shows: Wassermann (Kolmer) 4444—, cells 25, benzoin 002 213 333 331 000. It may seem a little strange that the spinal tests can indicate an active infection in the nervous system while the blood Wassermann is negative, but this combination of the two tests is very ordinary. In fact about 40% *of patients having positive spinal fluid tests have consistently negative blood Wassermanns.* At that rate, depending on blood Wassermanns alone, 40% of cases of ac-

tive neurosyphilis would be missed completely. The negative blood Wassermann means little or nothing in neurosyphilis. What is the significance of the spinal fluid test in this case? The strongly positive Kolmer with the moderate cell count and definite first zone reaction in the colloidal benzoin means resistant parenchymatous neurosyphilis with a suggestion of future paresis. Suppose the patient is treated with malaria and that after two years his tests are normal except for the spinal fluid Wassermann which is 2----. A spinal fluid Wassermann as weakly positive as this, without other changes in the fluid seldom occurs in the presence of active *late* neurosyphilis (except in the relapsing meningeal type) and usually indicates a practical subsidence of the infection.

In another case a woman of 30 with moderate dysmenorrhea has a general examination. A blood Wassermann, done routinely, is positive. There is no history of syphilis and no clinical sign even suggesting it. Her husband's Wassermann is negative. Has the woman syphilis? No attempt at interpretation of this test can be made without further investigation. Another blood Wassermann is done and the spinal fluid tested. The second Wassermann also is positive, the spinal fluid negative. Is there evidence enough to assume that the woman has syphilis? Something depends on how strongly positive the tests are. If the Kolmer shows 44 each time, (the first 2 tubes are of most practical importance in the Kolmer on the blood) it is probable that syphilis is present, but before going ahead with treatment, Kahn tests should be run as a check. If both Kahn tests are positive it can be assumed the woman has syphilis without further hesitation. Even if the Kahn tests had been negative it would have been proper to go ahead with treatment for syphilis. *Repeated strongly positive Kolmer Wassermanns practically always mean syphilis.* Suppose the Wassermanns had shown 32 and 41 (i. e. anything less than 44) on successive days. In such a case it would have been best to run a series of five or six tests, either with or without a preceding provocative injection of arsphenamine. Suppose the series had run: 32, 41, 44, 43, 42, 4—. These repeated strongly positive tests are good presumptive evidence of syphilis in themselves and justify giving treatment. If they had been 32, 41, 23, 21 negative, 2—, it might have been better to wait six months and to recheck them before advising treatment.

What if the first test had been 1—, "very weakly positive?" With the complete absence of any signs or symptoms or history of infection should any attention be paid to this Wassermann? A positive Wassermann no matter how weak, never should be passed by as insignificant. A thorough syphilologic investigation including history and physical examination, spinal fluid test and Wassermann repeats, should be made. With the first Wassermann weakly positive, a series of tests might run 1—, 31, 42, 43, 21, 42,—the strongly positive tests making their appearance only after repeated checking.

In the last case a man comes to us with a lesion about the nose and upper lip that has been present 3 weeks. There is no history of syphilis and the blood Wassermann is negative. Has the patient syphilis? It should not be hard to determine this point by inspection alone, for as a rule the cutaneous lesions of syphilis (except the chancre) have an appearance so characteristic that they are readily recognized without the aid of serologic tests. Treatment for syphilis can be given without hesitation on no other grounds than the clinical examination even when the Wassermann is negative.

Not only in cutaneous syphilis but in all phases of the disease a careful clinical examination is of the highest value. Experience with syphilis confers a detective sense that enables the examiner to spot the lesions of the disease in most of its many forms and to make diagnoses that would be missed completely through dependence on laboratory tests alone.

The few cases recounted above do not explain everything there is to know about the interpretation of serologic tests for syphilis. They are used merely to illustrate the value of these tests as signals in diagnosis and as guides at different steps in treatment.

A short summary of some of the main points is as follows: darkfield tests on genital lesions practically always mean syphilis when positive. They mean very little when negative. Positive darkfields on lesions in the mouth must be cautiously interpreted. Blood Wassermann tests (done by Kolmer technique) when consistently strongly positive mean syphilis except in very rare cases. False positives and non-specific positives should be very infrequent. Anticomplementary blood Wassermanns may indicate syphilis or be of no significance. Anticomplementary

spinal fuild Wassermanns are equivalent to strongly positive ones. Weakly positive Wassermanns may mean syphilis and always *should be thoroughly investigated.* They must never be regarded lightly. A single negative blood Wassermann test means nothing in ruling out a syphilitic infection. *A fairly large percentage of all cases of syphilis have consistently negative blood Wassermans.* A thorough syphilologic investigation should be made in every doubtful case and is of as much value in itself as the laboratory tests.

Kahn and other precipitation tests seem to be slightly less dependable than the Wassermann, although in certain cases they appear to be more accurate. It is well to run both whenever possible but to depend mainly on the Wassermann.

The cell count on the spinal fluid is of great importance. It may be the only indication that syphilis is present. A high cell count usually indicates meningeal involvement mainly and is rather of good than of bad import. A fluctuating high cell count occurs in resistant neurosyphilis.

The colloidal tests are used to discover resistant and especially paretic tendency in neurosyphilis. The first zone reaction is the only reliable one.

All tests should be repeated to be of greatest value.

HEREDITARY SYPHILIS

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Syphilis as a disease comprises such a wide variety of clinical manifestations that it is practical to study only certain phases of it at a time. I am presenting a case of hereditary syphilis in order to point out two or three things of interest.

L. M., white female 10 years of age. Admitted to the University Hospital May 31st, 1930. Complaint—deformity of the legs.

Family History: Father is living. Had a chancre 16 years ago and took a few antiluetic treatments. Mother living and well. Has had no miscarriages. One brother 13 years old and three sisters, ages 7 years, 3 years and 10 months respectively.

Past History: Was second child, normal delivery, full term, breast fed. During early childhood had whooping cough, measles and influenza. Past history otherwise unimportant except that the child has never possessed a good appetite.

Present trouble, according to father, began about one year before admission. At that time it was noticed that the tibiae were becoming bowed forwards and apparently thickening. The condition caused no pain, but steadily became more noticeable. The physical examination showed nothing of interest except a marked depression of the bridge of the nose and a distinct forward and inward bowing of the tibiae. The bones were thickened and their anterior surfaces rather uneven. Laboratory reports: hemoglobin 65%, total erythrocyte count 3,930,000, total leucocyte count 7,800. Differential: polymorphonuclear neutrophilis 48%, transitionals 4%, small lymphocytes 34%, large lymphocytes 14%. The blood Wassermann was positive. The urine was a brownish color, acid, s. g. 1.023, heavy albumen, trace of indican with a moderate number of granular casts. The phenolsulphonephthalein output was 75% for the first two hours. The daily volume of urine was small—on one occasion being recorded as 105 cc. The blood non-protein nitrogen was 36 mgns, the blood urea 10 mgns, and the creatinin 3.2 mgns. The blood pressure was systolic 110 and diastolic 68.

We have here two bone conditions which represent respectively a very early and a very late symptom of hereditary syphilis. One of the earliest and most common signs of infantile syphilis is the rhinitis or snuffles. It is present in at least three-fourths of the cases. There may be a mild coryza but it is generally severe enough that the noisy breathing can be heard for some distance. A variable amount of discharge is present which may be quite profuse and blood stained. At times deep ulceration of the mucous membrane takes place which may involve the cartilage and bone. This allows the bridge of the nose to fall in resulting in the so called "saddle nose" which we see here—a permanent mark of the disease.

The condition for which the child really came to the hospital is a later manifestation—the chronic, bilateral, hyperplastic periostitis of the tibiae. It does not generally appear until the fifth year or later. It comes on insidiously and with little or no pain. There is a fairly regular symmetrical enlargement throughout the entire length of the tibia. This produces the anterior bowing of the tibia or so called saber shin which is generally curved in the opposite direction to that seen in rickets.

Another interesting fact is that the child had a kidney condition. Now after diagnosing a nephritis it is necessary to obtain certain information before treatment can be rationally attempted. This is true regardless of the cause of the trouble. As a matter of fact it seems rather useless to try to remember any of the numerous and often complicated classifications of nephritis and to try to apply such classifications in actual practice. We need only to learn the parts of the organ involved and to get some idea of the extent of injury with the amount of disturbed function that results. We get this information in a more or less direct manner by examination of the urine and by making the various function tests. We obtain certain indirect information by observing such things as the blood pressure, the eye grounds, edema and uremic convulsions.

Now let us consider some of the findings in this case. There was a diminution of output. The liquid portion of the urine comes from the deproteinized blood plasma which passes through the glomerular filter. A lessened output means a lessened amount of plasma coming into contact with the filter. This may be due either to an inflammatory swelling of the glomeruli or to some condition in the tissues which holds the plasma away from the kndneys. The next thing noted is albumen. Albuminuria is an accompaniment of all types of nephritis and does not necessarily mean serious disturbance. It means that some of the blood protein is allowed to pass through the filter. However, large amounts of albumen are rather characteristic of nephrosis. Casts have about the same significance as albumen but indicate a little more serious injury. Red blood cell casts have the same meaning as does the presence of red blood cells. The persistent absence of red blood cells is quite significant. Their presence in cases of nephritis always means involvement of the glomeruli. They always come from the ruptured capillaries here. So we can conclude that since the urine was repeatedly and persistently free from any red blood cells that the glomeruli were not seriously injured.

Now let us see what information we get from the functional tests. In the blood chemistry the non-protein nitrogen, creatinin, etc., were practically normal in amount. This means there is not sufficient injury to impair the kidneys' function in eliminating these waste products. The phenolsulphonephthalein elimination is very good and this too indicates that the functional capacity of the kidneys is not impaired. The blood pressure is not elevated and this is evidence against there being any faulty elimination. Due to the large amount of albumen present and the granular casts ones first impression might be that there was a serious kidney involvement and might therefore hesitate to go on with antiluetic treatment. A closer analysis, however, reveals no serious disturbance of function. One should not, in such a case, fear to administer any of the drugs ordinarily employed against syphilis with the possible exception of mercury. As a matter of fact, the urine showed a tendency to clear up under treatment in this case.

SUMMARY

1. A case of hereditary syphilis is presented which shows bony changes characteristic of both the earliest infantile lesions and the later childhood lesions.

2. There is a complicating kidney condition which shows rather marked urinary findings. In spite of such findings the kidneys are proven to have very little disturbed function. The urine tends to clear up under antiluetic treatment.

3. A plea is made for more attention to the actual amount of kidney injury and disturbed function rather than attempting to classify each case of nephritis according to some particular author or text book.

DIAGNOSIS AND TREATMENT OF NON-SPECIFIC PROSTATITIS*

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There is already enough material written about this subject to fill a good sized library. In glancing thru this material tho, the reader can not escape the opinion that known medical facts are few, and that theory predominates. In speaking of this subject tonight I will attempt to confine myself to those cases in which the gonococcus and tubercle bacillus are not found.

Just a word about anatomy and etiology. The prostate, a musculo-glandular organ lying between the outlet of the urinary bladder and the triangular ligament, is one of the most important of the accessory genital glands. The ratio of muscular and other supportive tissue to glandular tissue is one to five. It has within its confines

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and coursing thru its substance the prostatic urethra and the ejaculatory ducts. It is a five lobed racemose gland, and in the adult its bulk is represented by the two lateral lobes. The anterior and posterior lobes at this time are rudimentary, the mesial lobe, lying on the floor of the urethra, causes trouble at times by enlargement or fibrosis resulting in obstruction to the urinary outflow. The prostate is a highly vascular gland, deriving its blood supply from the middle hemorrhoidal, the inferior vesical, and the internal pudic arteries. This gland is intimately associated with the two seminal vesicules whose ducts open on the floor of the prostatic urethra on either side of the veru-montanum. Strange to say this is one of the great weaknesses in the make up of man, the designer evidently not anticipating the countless trouble infection could produce here. It is known that the prostatic and seminal vesicular ducts have no muscular tissue with which to empty themselves. Once an infection gains the posterior urethra it tends to travel up these ducts, hunting the path of least resistance, being hemmed in by the vesical sphincter posteriorly and the sphincter urethra anteriorly. Another important point is the fact that the mucosa of the posterior urethra is not supplied with mucosal glands found in the anterior urethra. The gland tissue here can fittingly be compared with a large river and its tributaries. The small stagnant ponds, sloughs, and bayous at the head of the system, these draining into the small creeks, which grow larger and terminate in the larger rivers represented by the prostatic ducts. Once an infection reaches the stagnant ponds or sloughs at the head of the system it either becomes quiescent, awaiting its host's lowered resistance or is absorbed.

The original etiological factor is hard to prove. Infection, it is admitted can take place either thru the vascular system, or ascending up the ducts. Much discussion centers around the gonococcus, the fact that this organism is the original offender. In time it is either annihilated or becomes quiescent and nested, it is followed tho by the camp followers, the colon bacillus, the streptococcus, or the staphylococcus. Pelouze seems to thinks this a likely presumption. Shuler says positively not, and cites the fact that at the Mayo Clinic the percentgae of patients having prostatitis giving a history of gonorrheal infection previously having dropped from 76% in 1923 to 30% in 1929. Be this as it may it is not for me to say what part the original gonorrheal infection plays and in what percentage it is the original offender. Nickel has done some very important work recently regarding the bacteriology of prostatitis, and the selective localization produced experimentally. He had two points in mind: "1. To determine the dominant flora of the prostate gland and seminal vesicles associated with disease. 2. To determine the pathogenicity and elective localization in animals." Out of 3500 cultures taken 2380 were positive, selecting patients who had some ailment which might be attributable to prostatitis. He has shown that many strains of organisms isolated from the prostatic secretion of man not only produced lesions in rabbits similar to those in patients, but also localized in and were recovered from tissues of the rabbits analogous to that of the prostate gland and seminal vesicles in man. He also emphasizes the fact that in some instances the prostate and vesicles are secondary foci, and after failure of adequate treatment of the prostate to improve the patient's condition while other foci were present, upon their removal (evidently primary) the patient's condition improved markedly.

Diagnosis: In the average case of symptomatic prostatitis the symptoms will point to the local trouble. They may be and generally are vague, as rheumatic pains, general malaise, sleeplessness, melancholia, headaches, and any other symptom which the organism would have from toxicity. Local symptoms are low lumbar, perineal, or sacral pain, difficult, painful or frequent urination, loss of vigor, frank impotence, penile discharge which may vary from the accustomed morning drop to a frank discharge, itching or tingling sensation along the course of the urethra, premature ejaculation, or apparent sterility. The final diagnosis must be made with the microscope and index finger. The secretion must be secured and examined, preferably fresh. Much information can be gained from a well trained finger. With the patient in the preferred position, Simm's knee chest, or stooping, your index finger, well lubricated, is passed into the rectum, noting the rectal tonus. The prostate is felt some one and one-half inches inside the internal sphincter, and should be well palpated, noting its contour and consistence. It should be the size of a horse chesnut, and about the consistence of contracted muscle. On medium pressure it should not have any areas of induration.

Different degrees of pain are experienced by the patient, but if the finger is kept straight, the median portion of the gland avoided, and a light stroke downward and mesially is made excessive pain will be avoided. The vesicular region is next explored, and this to be satisfactorily done means a reach of at least three and one-half inches with the finger. The vesicles are situated above and lateral to the prostate, normally they cannot be palpated, but an attempt should be made to strip them with a light stroke downward and mesially. It should be said at this point that if the gland feels normal. if the secretion shows no pathological elements on the first examination, this in no means excludes the diagnosis of prostatitis, especially when the symptoms point to focal infection. The patient should be asked to return for at least three massages, and if thought necessary diathermy before he should be told he has no disease of this gland. Here by repeated massage and the heat of diathermy you promote drainage of the stagnant sloughs and ponds at the head of the prostatic system, and many times will be rewarded by definite evidence of pathology. It can be said that only with the finger, thru palpation, the patient never should be given a diagnosis of prostatitis. On securing the fluid it will be seen to be of a pale, opal, semi viscid gelatinous material, which on exposure to air loses some of its elasticity. Under the miscroscope, using a 1-6th lens and cover slip you will see normally lecithin bodies, which are clear, have no nuclei, no crenation of the membrane, and vary in size up to that of a white blood cell. Spermatozoa may be present. If normal and freshly examined they will display varying amounts of motion. There is seen a thin stroma thruout the field resembling a spider's webb. Pathologically we see dead spermatozoa, pus cells varying from five upwards, these cells are disintegrated, there is some disturbance of the nuclei, and some crenation of the membrane. They may be free or arranged in clumps. If clumped this gives very definite evidence of pathology and shows that the gland is draining very poorly.

Treatment: The methods of treatment are legion, and no one set method will apply to all cases successfully. It is well to say that if you are treating this pathology and are cock sure that you can render them all microscopically permanently free of pathological elements in the secretion, you are doomed to many disappointments. What should be told every patient with prostatitis is that he has a chronic infection of a gland that will take some time to improve symptomatically, that for the first two or three treatments he may seem to get worse, that as soon as this gland gets to draining well he will improve symptomatically, that after his symptoms have ceased, and the gland, if it does clear up microscopically, should be checked at least once every three months to keep up drainage and assure himself that no stagnation is present if possible.

Owsley Grant has fittingly said that the methods of treatment of prostatitis may be likened to a vast army arranged in Echelon; first, the reconnaisance scouts of orally administered sedatives, second the light cavalry of vaccines, third the machine guns of massage and diathermy, then the infantry of fixed bayonets or vasopuncture, and in dire need supported by the heavy artillery of prostatectomy.

Prostatic massage ranks first in treatment, and in doing this the gland must be gone over thoroughly, taking care not to produce any undue trauma or abuse, always with the stroke downward and mesially. Much damage can be done with this manipulation, it does not look very nice for a patient to be massaged today and come in day after tomorrow with an epididymitis or acute prostatitis. I do not believe it should be massaged any oftener than twice per week. You must be on the lookout for bladder irritability, and if present discontinue massage until it subsides. An attempt should always be made to strip the vesicles. It may be said that massage increases blood supply, promotes drainage and at each time massaged an attempt is made to press the secretions out of the small bayous and ponds at the head of the prostatic system, as it is in these minute places that absorption takes place. The larger ducts drain well enough, and just as soon as you get the more remote gland structure draining well that soon will you get a satisfied patient.

I would place next in treatment local applications to the urethra. It is impossible to have a chronically infected prostatic without some pathology in the prostatic urethra consisting of granulations, edema, and denudation of the mucosa. Local application here of silver nitrate up to 2% or the colloidal silver salts following massage will reap some benefit. You must approach the patient cautiously, mercurochrome in 1% aqueous solution is irritating to some ure-

thras. Begin with the less irritating salts as nov-argentum, neo-silvol, etc., and gradually increase percentage, shifting to nitrate of silver in very dilute solutions until the patient can take it with very little discomfort. I believe that a little personal experience works wonders here, if you are able to take a one per cent nitrate of silver yourself with comfort, then expect the patient to do the same. I believe that if every man doing this work was first massaged and local applications made he would at least find out that gentleness counts, and he would not attempt to use highly irritating drugs in the urethra in concentration. Dilatation with the Kolman dilator, or sounds progressively may be tried with benefit, here again a little personal experience will count and assure the patient gentleness.

Diathermy I would place next. Much has been written and retracted already about this agent. It is not a cure all, it can not even be used alone on the average patient with results which are lasting. Properly applied and in selected cases it certainly is a useful agent. It is pleasing to the patient, it promotes blood supply, increases diapedesis, stimulating in this way drainage of this gland. If the specimen shows much clumping of the pus cells, if the gland is extra firm, if the secretions are extra hard to secure, if in other words you think that very little drainage is taking place in the gland structure, then this agent should be tried, taking extra care that the patient is closely watched for bladder irritability, Lately I have had two cases respond badly to this agent, after the first treatment they developed a definite hematuria and vesicle tenesmus, I attribute it entirely to this agent as no irritating drugs were used locally, also the patients showed immediate improvement upon the removal of diathermy. I never exceed 600 milliamperes, do not diathermize this gland longer than thirty minutes, at all times watching the patient, because it is very easy for the electrode to get misplaced, or there may be surges come in on the electric line causing fluctuation in the milliampereage. I believe diathermy should be stopped as soon as you get even distribution of the pus cells in the specimen, as drainage is assured in this way. Massage should always follow diathermy.

Next will come vaccines of which autogenous or stock may prove of some benefit. A properly prepared autogenous vaccine is much better than the shot gun method of stock vaccine. Shuler, in cultural work has found some fifteen types of bacilli and cocci in the prostatic fluid and states that the streptococcous hemolyticus occurs most frequently. He states that autogenous vaccine therapy occupies a major place. To culture the fluid he uses a gelatin brain broth making it anaerobic with some oil on top of culture. He has found the streptococcus hemolyticus in 31% of cases. In arthritis associated with prostatitis he has found 63% of positive cultures. Non specific protein therapy as aolan, lacmagnese, typhoid vaccine, lactogen, etc., act as an aid in metastatic conditions benefitting also the existing prostatitis. Injections of antiseptics into the prostatic bed or prostatic substance as mercurochrome or Pregyl's solution has been attempted with no general response better than other methods. I believe this method carries sufficient possible power for harm to override the benefits derived.

Intraurethral manipulations generally speaking for simple prostatitis is not good practice. In persistent cases, where there can be other pathology than prostatitis the entire urinary tract should be thoroughly examined. To cystoscope or urethroscope one patient with a simple prostatitis, a posterior urethritis, or trigonitis will not reveal anything new. After looking at one you have seen them all, they all show a varying amount of redness, edema, and erosion of the mucous membrane, if any localized granulations are found these should be touched with silver nitrate 20-50%.

The surgical end of prostatitis I will not attempt to discuss, only mention them. Vaso-puncture is an expert's job, and yet I have never been abble to puncture the vasa thru the scrotal skin. I am from Missouri in believing that every patient can be entered successfully by this route. Vasotomy is much better, and this consists in cutting down on the vas on each side and injecting towards the vesicles, collargol, argyrol, or other antiseptic. Five to ten c.c. is sufficient, the patient's sensation of fullness in the perineum serving as a guide for filling of the vesicles. This is an excellent method in treating persistent cases. An attempt is made in this way to carry the antiseptic to the seat of the infection, and with one stroke sterilizing the vesicles.

In conclusion, I would like to say that the logical therapy in the treatment of prostatitis should be directed to drainage of this gland, quite naturally when the gono-

coccus and tubercle bacillus are not found, and that to assure drainage massage properly administered, in the occasional case supported by diathermy, and in all cases combined with local applications to the posterior urethra will secure subsidence of the symptomatology that this gland is responsible for. Also I would like to leave the impression that the patient should be considered each and every one individually, other foci of infection cleared, and appropriate therapy instituted.

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LOCAL ANESTHESIA IN THE TREATMENT OF FRACTURES

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The reduction of fractures under local anesthesia is not a new procedure as it was first attempted in 1885 by Conway, and successfully reported by G. Lerda in 1907 and Quenu in 1908. Since that time, with the less dangerous cocaine derivatives such as novocain, tutocain, and neocain, and the greater development of local anesthesia as a routine procedure for nearly all surgical conditions, this procedure has become more generally used. Lorenz Bohler in the Arbiter Unfall Krankenhaus in Vienna reports its successful use in over three thousand cases of all types of fractures without infection, injury, or intoxication.

The object of all anesthesia in the treatment of fractures is the relief of pain, both due to the trauma of the injury which is aggravated by the slightest movement, and to relieve the pain due to manipulation in the reduction and application of support.

General anesthesia is never needed for reduction of fractures as local, regional, nerve block, or spinal anesthesia can be used in every case, both adults and children, with more ease, less danger, and with the promise of better results than general anesthesia.

The indications for the use of local anesthesia is any unreduced or improperly reduced fracture, either recent or old, simple or compound, which needs manipulation.

In recent fractures injection of the hematoma as so successfully carried out by the Bohler method as will be described, is simple, successful, and without danger.

In compound fractures where the hematoma is not intact and the novocain solution is likely not to completely infiltrate the entire hematoma but leaks out through the external wound, and in old fractures where the hematoma is well organized, it is necessary to inject the whole circumference of the bone.

Spinal anesthesia or brachial plexus anesthesia is indicated in fractures over two weeks old, difficult fractures and dislocations of the pelvis, upper and lower extremities, especially where there is great local trauma, and also trauma elsewhere as of the thorax, lungs, bladder or urethra.

The advantages of local anesthesia are numerous, the more important are that the anesthetist can be dispensed with; no general disturbance as associated with a general anesthesia; patient can go to the X-ray room alone, cooperating with the roentgenologist in the taking of the pictures; deformity can be corrected several times if necessary and the fluoroscope can be used to better advantage with the aid of the patient; relaxation of the muscles is much more pronounced than under shorter anesthesia; local anesthesia lasts two to three hours and can be repeated if necessary; hospitalization is not necessary in the case of less severe fractures; patient can go home unassisted after reduction; aged people and those with hypertension, a decompensated heart, pulmonary or renal disease, can stand a local infiltration where general anesthesia could not be used; post-operative pneumonia, passive and active congestion, shock, and alcoholic manifestations are avoided.

The technique of local anesthesia is very simple. The hematoma injection as recommended by Bohler is the easiest and gives excellent analgesia and is the method that has been used in my cases.

Determination of the site of the fracture is important and should always be done by the X-ray preceding the reduction and also by the site of the tender point and the deformity.

The skin is painted with tincture of iodine, there is no need of shaving the parts or other preparation. The needle is injected until the bone is felt. Now 4 or 5 cc. of a 2% novocain solution without adrenalin is injected and the syringe is removed from the needle. If a red colored solution escapes from the needle we know we are in the hematoma and now 15 to 20 cc. of the solution is injected. If only a clear solution returns the needle must be shifted until the hematoma is punctured.

If there is a comminution or more than one bone fractured each site of fracture should be injected. The patient should be prone during the injection so that there will be no attempt to use the extremity as the pain disappears at once and the patient might cause himself further injury.

Now the fracture can be manipulated without pain with perfect muscle relaxation as much as necessary and proper support applied without fear for the safety of the patient.

A 2% solution of novocain is used because it gives quicker, more complete, and more prolonged anesthesia than the usual ½ to 1% solutions and is without danger, as a smaller quantity is necessary, but 50 to 60 cc. can be injected with safety.

The amount of solution depends upon the size of the hematoma, the location of the fracture, and the amount of damage to the surrounding tissues. Enough of the solution should be used to induce good anesthesia as there is little danger of using too much novocain.

In compound fractures the needle should be inserted through the sound tissue and not through the traumatized and potentially infected tissues and injection around the bone may be necessary in addition to the hematoma.

I have used local anesthesia exclusive to all others since seeing Professor Bohler and have had perfect anesthesia, although at first I was afraid to use enough of the novocain solution and the injection had to be repeated, but now a sufficient quantity is used at the initial injection to complete the reduction without further anesthesia. My series have included Colles, ulna and radius, femurs, humerus, tibia and fibula, Pott's and of the smaller bones, both simple and compound, and comminuted, with excellent prolonged anesthesia.

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SPINAL AND SPLANCHNIC ANAESTHESIA IN THE RELIEF OF INTESTINAL OBSTRUCTION—WITH A REPORT OF THREE CASES.*

BENJAMIN W. WARD, M.D.
TULSA

Since Wagner[1] in 1922 published his first paper on the treatment of "ileus" with spinal anesthesia, the foreign literature has been replete with case records of intestinal obstruction treated by its administration. In April, 1926, Rosenstein and Kohler[2] published the results of their experiments on rabbits with intestinal obstruction due to ileus upon which they induced splanchnic anesthesia through the use of large amounts of dilute procaine solution, thus securing a relief of the condition. They concluded that it would be necessary to use procaine in amounts in excess of human tolerance to accomplish the same results with patients and so used and recommended nicotine in it's stead. They employed three to five milligrams of nicotine clinically in six cases, giving the drug by the posterior splanchnic method.

Ochsner and his co-workers, Gage and Cutting[3], conducted a series of experiments on dogs in 1928, at this time unaware of the work of Rosenstein and Kohler and, in a masterly article in the Journal of the American Medical Association, published their results in June of that year. These men were the first to recommend the establishment of splanchnic through the use of novocain by the posterior method in the relief of intestinal obstruction due to ileus of a paralytic or adynamic type. In the interval between 1922 and 1928 the French apparently were most active and persistent in the use of spinal anesthesia for this purpose.

Duval[4], as quoted by Ochsner et al, col-

*Read before Tulsa County Medical Society, October 27, 1930.

lected 400 cases of intestinal obstruction in which spinal anesthesia had been used. These were divided into three groups: First, strangulated hernia; Second, adynamic ileus; Third, mechanical ileus. In the cases of adynamic, paralytic, and spasmodic ileus, the condition was relieved in 68% of cases. In those of mechanical ileus, relief was obtained in 16%. In this connection. I can do no better than quote from the paper of Ochsner, Gage and Cutting: "In cases of mechanical obstruction there is, early, an interference with the contractility of the intestinal musculature. In fact, hyperperistalsis is invariably present. The obstipation and toxemia are the result of mechanical obstruction and the intestinal musculature becomes paralytic as a result of prolonged distention or toxemia. It is folly to assume that any more beneficial results would be obtained by renewing the peristalsis without removing the obstruction than were obtained before the adynamic ileus set in." Let us then, at the outset, make it very clear that spinal or splanchnic anesthesia is indicated for relief *per se* only in those cases in which no mechanical obstruction is known to exist.

What is the rationale of this form of treatment? Both spinal and splanchnic anesthesia are directed to the abolition of the inhibitory influence exerted by the sympathetic system upon the intestinal musculature. Experimental evidence indicates that a condition of reflex tonus exists by reason of the action of the sympathetic nerves supplying the intestine and the effect of this tonus normally is the prevention of excessive peristalsis. The fact that section of the splanchnics produces a marked increase in intestinal movements is adduced as evidence in support of this idea; again, stimulation of the splanchnics produces a reduction or cessation of these motions. Marked and continued stimulation would bring about a condition of relaxation of the intestinal musculature of varying degree as a direct result of the inhibitory action of the sympathetic fibres. Therefore, any method that would accomplish the interruption of such inhibitory influence should cause a renewal of peristalsis, or strenghten its force if already present, provided the intestinal musculature is still capable of contraction. That the establishment of spinal or splanchnic anesthesia does, in fact, accomplish this is amply demonstrated by many experiments.

As early as 1899 the physiologists Bayliss and Starling noted that section of the splanchnic nerves resulted in increased intestinal peristalsis. The well-known physiologic ileus" observed upon opening a dog's abdomen is relieved and replaced by a condition of active peristalsis under spinal anesthesia as proven by the experiments of Markowitz and Campbell[5]. These men further demonstrated that, in the same animal, a paralytic ileus caused by iodine solution placed in the peritoneal cavity or by rubbing loops of intestine with gauze could be relieved by the induction of spinal anesthesia. Ochsner and his co-workers were able to duplicate these results with splanchnic anesthesia by the posterior technique of Kappis and to elaborate upon them to a considerable degree. Again, it has long been recognized by abdominal surgeons that upon opening the abdomen the intestines are found in a state of hyperistalsis or contraction when their patient is anesthetized by the subarachnoid route.

Armed with the above information and fortified by encouraging results published by European workers such as Chenut[6], Asteriades[7], and others as well as White in this country, I decided to use either spinal or splanchnic anesthesia whenever a suitable case presented itself. The opportunity was afforded on three occasions and the following technique used to produce anesthesia by these methods.

Technique for the induction of spinal anesthesia: The site of puncture over the second lumbar interspace was anesthetized by 1% novocain solution to which ¾ gr. ephedrine sulphate had been added—the ampoules containing novocain and ephedrine solution already prepared are acceptable. The spinal puncture was made with the patient sitting on the side of the table. 100 to 120 milligrams of neocain was dissolved in 2-3 c.c. of spinal fluid removed from the patient. An amount of spinal fluid equal to that contained in the syringe was then withdrawn and half of the total amount injected with considerable rapidity; again, an equal amount of spinal fluid was added to that left in the sypringe and two-thirds of the total injected rapidly; finally, spinal fulid was again aspirated equal to the amount remaining in the syringe and the entire amount injected rapidly. The whole maneuver consuming much less time than it requires to describe. The patient was at once placed in a moderate Trendelenburg position. Anesthesia to the level of the nipples was obtained in this way. It is, of course, necessary that the anesthesia of the cord be high enough to in-

terrupt the pre-ganglionic fibers to the thoracic ganglia from which the splanchnics are derived. The technique described has given an anesthesia of sufficient height.

Technique for induction of splanchnic anesthesia, posterior route: The method advocated by Labat was used and this description, somewhat abbreviated, is taken from his writings. With the patient lying on either side, back arched, knees flexed and drawn up toward the face, the twelfth rib and the first lumbar spine are defined by palpation. A cushion is slipped under the loin, if the spine is too much bent sideways. A wheal is raised on the lower border of the twelfth rib opposite the first lumbar spine, approximately 7 cm. distant from the midline of the back. A needle is passed through this wheal and contact is made with the twelfth rib. The needle is then introduced deeply in the plane of the cross-section of the body, that is, vertically to the table on which the patient is resting, and passing just beneath the lower border of the rib is advanced forward and inward in a direction making an angle of 45 degrees with the median plane of the body. If correctly introduced, the needle's point, at a depth of about 8 to 9 cm. comes in contact with the body of the first lumbar vertebra just in front of the intervertebral foramen. The needle is then partially withdrawn and reinserted several times, its direction being changed slightly each time; the angle which it originally made with the median plane of the body is reduced and bony contact is again made with the body of the vertebra until finally the point of the needle passes tangentially to the body of the first lumbar verterbra. As soon as bony contact is lost, the needle is introduced one centimetre further and, after aspiration, injection is made of 25 c. c. of the ½% novacain solution. The needle is then withdrawn until its point reaches the subcutaneous tissue and is reintroduced in a direction inclined slightly downward aiming at the middle part of the body of the second lumbar vertebra. A technique similar to that described being followed and a second injection made at about the level of the second lumbar vertebra. Injection should be slow and the aspiration test made and repeated several times during the injection to insure against its being made into a blood vessel. The opposite side of the body is injected in the same way.

CASE RECORDS

Case No. 1. Mary C., colored, aged 34, a housewife, apparently in robust health. This patient was seen in consultation during labor. She was a primipara and had been in labor forty-eight hours, forceps had been applied under ether anesthesia but delivery not effected. In consultation a diagnosis of uterine inertia as a result of myomatous growth was made and a low mid-forceps delivery effected under ether anesthesia some hours after the original attempt. A stillborn child weighing nine pounds being delivered with some difficulty after a deep episiotomy. The patient began to exhibit considerable abdominal distention twelve hours later and after thirty-six hours this was marked and repeated vomiting was occuring despite the use of gastric lavage, hot abdominal stupes, pituitrin and rectal flushes. No flatus or fecal material was discharged after the first flush. At the end of forty-eight hours after delivery auscultation over the abdomen revealed the tinkle of fluid in the right lower quadrant but no audible peristalsis. The patient was given 2% saline by hypodermoclysis and 3% saline by vein to the amount of 3000 c.c. during the ensuing twenty-four hours as well as repeated rectal flushes which still produced no results. At the end of another period of twelve hours the patient was becoming rapidly weaker with a pulse rate of 132, subnormal temperature, and a cold, clammy skin. I obtained permission to attempt her relief by the induction of spinal anesthesia. The patient's blood pressure was 102 systolic and 76 diastolic at this time. ¾ grain of ephedrine sulphate was given hypodermatically with the novacain that infiltrated the spot of spinal puncture. Through the second lumbar interspace 120 milligrams of neocain was introduced into the subarachnoid space at 1:30 p. m., and the patient immediately placed in the Trendelenburg position. Attendants were prepared to give a rectal flush but at 1:45 p. m., the patient began to pass large amounts of flatus and foul smelling material involuntarily. During the afternoon frequent bowel movements occurred and by 10:00 p. m., after the administration of more saline by vein and subcutaneously, the vomiting ceased, pulse volume was good, rate 102, skin warm, blood pressure 124 systolic and 32 diastolic, and the abdominal distention completely relieved. Further recovery uneventful. The blood pressure rose to 117 systolic immediately after the administration of ephedrine and dropped to 80 systolic within ten minutes after induction of spinal anes-

thesia, it then gradually rose to 100 within the following hour.

Case No. 2. Mrs. T. C., aged 29, white, a housewife, weight 92 pounds, appearance emaciated. This patient was a chronic sufferer from bronchial asthma. She had ben hysterectomized for a pelvic infection at 24 years of age. She was seen first for attacks of bronchial asthma and once was treated for what was apparently a condition of partial intestinal obstruction and relieved by hot stupes to the abdomen and rectal flushes. Operation following this recovery was refused. I was summoned early one morning to find this patient suffering from an acute intestinal obstruction, the history obtained at this time elicited the following facts: no bowel movements for three days, vomiting and cramplike pains in the abdomen for twenty-four hours with increasing abdominal distention. Her general condition at this time was fair. Pulse rate was 108, blood pressure 114 systolic, 72 diastolic, skin warm and moist. Within an hour her abdomen was opened under ethylene anesthesia, she was quickly eviscerated and a rapid exploration revealed a marked dilatation of the entire jejunum and upper two-thirds of the ileum with this section of bowel bluish and filled with fluid material. There was free fluid of a straw color in the abdominal cavity. The lower ileum had two slender bands of adhesions about three inches apart almost occluding the bowel lumen and a third band just above the ileocecal junction which was completely occlusive. These were divided after an intestinal clamp had been placed on the bowel just below the lowermost band and the intestine was completely emptied of it's foul contents after the method advocated by Holden of Portland, Oregon. The abdomen was closed without drainage. The patient did well for twenty-four hours and then abdominal distention began and increased rapidly. Vomiting was almost continuous after thirty-six hours and rectal flushes and gastric lavage failed to relieve either the distention or the vomiting. Saline solution was given in copious amounts by vein and subcutaneously but forty-eight hours after laparotomy patient was in a desperate condition. Blood pressure at this time was 98 systolic, 62 diastolic, pulse rate 128, facies pinched, and all the signs of severe intestinal toxemia present. It was decided to use splanchnic anesthesia as suggested by Ochsner, Gage, and Cutting, it being felt that the case was one of paralytic ileus. After a preliminary hypodermic of ¾ gr. ephedrine sulphate, 50 c. c. of ½% novacain solution was introduced on each side into the splanchnic area by the technique of Labat, itself a modification of the technique of Kappis. The patient was placed in a moderate Trendelenburg position and her blood pressure which had risen to 116 systolic, 74 diastolic, after the administration of the ephedrine, now dropped to 88 systolic but slowly rose to 96 systolic within a half hour. This anesthetic was administered at 10.40 a. m., and at 11:00 a. m., a rectal flush obtained exceilent results and ausculation over an abdomen that had been previously ominously silent now revealed sounds of active peristalsis. This patient recovered without further evidence of intestinal paresis or paralysis.

Case No. 3. Richard L., a white male, aged 19, a farmer, general physical condition prior to present illness excellent. This patient was operated on by a confrere and had an acute, gangrenous appendix removed. He developed what was apparently a paralytic ileus following the operation. All other measures failing, in consultation five days after operation, the induction of splanchnic anesthesia was suggested. At this time the young man was in a critical condition stercoraceous vomiting having occurred. This suggestion was accepted. The blood pressure at this time was 100 systolic and rose to 108 systolic after ephedrine had been given. It fell to 90 systolic after the anesthestic solution had been introduced into the splanchnic area. Within two hours it had again risen, this time to 102 systolic. The procedure was started at 5:15 p. m., and at 5.40 p. m., a rectal flush was followed by the discharge of large amounts of foul-smelling fluid with small fecal particles. By the following morning the patient was no longer vomiting and the distention had disappeared. Frequent rectal flushes had been given during the night as well as gastric lavage and the administration of 2000 c.c. of saline solution by veins and hypodermoclysis. The patient recovered.

The case records presented, it is believed, are representative of the type of intestinal obstruction which can be relieved by the use of spinal or splanchnic anesthesia. In each one the history and physical examination were such that a diagnosis of paralytic ileus could be made with reasonable assurance of accuracy. Again, in each, the circumstances were such that mechanical obstruction could be dismissed

as the probable cause of the ileus. In the first instance, no previous operation had been performed and there were no evidences of hernia. It must be admitted that pelvic peritonitis with resulting intestinal adhesions might have been the cause but there was no history suggestive of such a condition and, as a rule, these patients show a tendency to partial intestinal obstruction before the acute condition develops although this is by no means invariable.

In the second case, the mechanical obstruction had been removed and complete exploration accomplished so that it was felt that the ileus was of true paralytic type due to the toxemia and long continued over-distention of the intestinal musculature, both of which probably provided a source of stimulation to the splanchnic system resulting in undue inhibitory influence being exerted.

In the third case, local peritonitis was known to exist at operation and while it was not at all certain that a true mechanical obstruction from peritoneal adhesions was not present, it was thought that the patient should be given the benefit of the doubt and in any event the abdomen could be opened under local anesthesia within a half hour if no results were obtained.

It is hoped that the writer's position with regard to the use of spinal or splanchnic anesthesia in cases of intestinal obstruction has been established definitely. The personal conclusion has been reached that, in cases of intestinal obstruction due to so-called paralytic or adynamic ileus, in which no mechanical obstruction co-exists, spinal or splanchnic anesthesia may be used with reasonable expectancy of a relief of the condition provided the intestinal musculature is still capable of contraction. Certainly in cases of strangulated hernia, volvulus, intussusception, or obstruction by bands of adhesions, etc., all definitely mechanical conditions, it cannot be expected that "chemical section" of the splanchnics, as Alsina[4] terms it, by spinal or splanchnic anesthesia will remove the obstruction. Any such case in which spinal or splanchnic anesthesia was administered without operative interference must be expected to die as the peristalsis induced by the anesthesia alone would prove only harmful, it being impossible for it to remove the mechanical obstruction present.

It lies not within the scope of this paper to discuss the differential diagnosis of the various forms of intestinal obstruction. Volumes could be written and, indeed, have been written on this subject and any attempt to go into the matter here would not only be time consuming but also in the nature of "carrying anthracite to Scranton," as Dr. John Cooper would say. However, it would not be amiss to suggest that in those borderline cases in which preoperatively the nature of the obstruction cannot be determined, spinal anesthesia might well be established and if within a limited time no good results were obtained, the abdomen could then be opened under the same anesthetic.

The objection may well be raised, as indeed it has been, that the use of a method which produces usually a marked drop in blood pressure in a patient who is already in a condition of surgical shock is one extremely hazardous. This must be admitted. However, interference of any sort on such patients is dangerous in the extreme and since death is inevitable without relief, the hazard, I feel, is justified. Here it might be said that the use of ephedrine a few minutes before the induction of anesthesia and the placing of the patient in the Trendelenburg position immediately after, are even more indicated, if possible, than in the routine use of spinal or splanchnic for other conditions. Again, the use of saline by vein and subcutaneously in sufficient volumes before the administration of anesthesia is as imperative here as in any case of intestinal obstruction. If the blood pressure is very low acacia and glucose solutions may be used in addition to the ephedrine to raise it's level prior to the establishment of anesthesia. Lastly, the use of rectal flushes, hot stupes to the abdomen, pituitrin or eserine in certain cases, should previously be given a fair trial although it is folly to wait more than a short time as every minute is precious. Finally, I have seen cases in which laparotomy had been done for obstruction, the obstruction relieved, and an enterostomy opening made in which the enterostomy failed to drain and the patient died. I believe that in such cases the use of splanchnic anesthesia is justified as a last effort to renew the peristalsis in the paretic bowel and I know of one case in which this was done with a favorable result.

With regard to a choice between the two methods, it is felt that since they have been used in only three cases, a definite statement cannot be made. However, each seems to possess certain advantages. For the majority of practitioners spinal anes-

thesia is the more familiar and is easier of administration, it can be used for subsequent laparotomy and exploration should this prove necessary, and it accomplishes the relaxation of the anal sphincter which may be an advantage in the more rapid relief of the overladen intestines above. In addition, only one puncture is necessary for the establishment of spinal anesthesia whereas at least two are needed to induce splanchnic. On the other hand, splanchnic anesthesia is directly applied to the splanchnic area and no complete anesthesia of the body from the nipples down is produced. In other words, it accomplishes a single, directely aimed at result with no additional anesthesia effect. Since many cases of ileus occur after operation, this avoids an early repetition of complete anesthesia. Apparently the extent to which the blood pressure drops after each has not been compared but the personal impression obtains that there is a less marked drop after splanchnic anesthesia than spinal. In the hands of an expert, splanchnic would seem to be less dangerous in it's use than spinal. Labat after a very large series of cases has never noted any serious untoward effects.

SUMMARY

Based upon favorable reports in the literature with regard to the relief of certain types of intestinal obstruction by the use *per se of* spinal or splanchnic anesthesia and upon experimental evidence that from a physiologic standpoint, such treatment would be rational, three cases in private practice were so treated.

A brief account of the technique used in induction of both forms in these cases was given and case reports were presented in which spinal anesthesia was used once and splanchnic anesthesia by the posterior method of Labat twice, in the treatment of paralytic ileus. In all three cases an evacuation of the intestines was obtained and the patient recovered.

It was stressed that while a mechanical obstruction continued no favorable results could be hoped for and the anesthesia *alone* was positively contraindicated. No attempt was made to differentiate mechanical obstruction from various forms of ileus in which there was no actual occlusion of the intestinal lumen. A possible objection to the use of such anesthesia was discussed and means suggested to combat its cause. No definite conclusion was reached as to final preference for either form although some advantages of each were mentioned, it being felt that the very nature of certain cases would dictate the choice.

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TRAUMATIC RUPTURE OF BLADDER, WITH PERIVESICAL EXTRAVASATION

W. Calhoun Stirling and Norvell Belt, Washington, D. C. (Journal A. M. A., June 15, 1929), report on seven cases. Hematuria, disturbance of urination, pain and a tumor mass in the suprapubic area constitute the usual picture of rupture of the bladder. Treatment consists of (1) supportive measures, including transfusion if needed, salt solution under the skin, opiates for relief of pain, and control of all bleeding, and (2) immediate suprapubic cystostomy, together with counterperineal drainage if needed.

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EDITORIAL

THIS ISSUE

We believe that this issue of our Journal is one of the most practical and useful ever issued. We believe it should be closely read by every practitioner, as well as by many specialists. It deals with matters too often not observed early enough and sometimes entirely overlooked which leads to the discomfiture of the physician and loss of confidence, if not injury on the part of the patient.

Cross-Eyes, Early Treatment, by Dr. C. B. Barker, Guthrie. Dr. Barker points out the proper time and the rationale for the treatment of cross eyes and makes a strong plea for their attention at a time when the best results may be expected.

Nephropathies, by Dr. Hugh Jeter, Oklahoma City. Dr. Jeter bases his paper on 276 autopsies. He states that nearly all adult kidneys show pathology, that nephrolithiasis, hydronephroses and pyelitis are frequently unsuspected even in hospital cases. (The writer is well aware of the wisdom of this assertion and recalls many such cases occurring in a strictly hospital practice in the past 7 years. Post-surgical cases, for a time apparently doing well, then suddenly developing symptoms of more or less seriousness, are often traceable to pyelitis or some genitourinary condition. These the surgeon must always keep in mind).

Bright's Disease, Dr. Jeter concludes is not a local disease but in most cases is a consequence of some local disease.

Spinal and Splanchnic Anesthesia in Intestinal Osbtruction, by Dr. Benjamin W. Ward, Tulsa. This is one of the gravest conditions confronting the surgeon. It demands immediate diagnosis and very prompt and proper care if the life of the patient is to be saved. The technic is well described by Dr. Ward.

Hereditary Syphilis, by Dr. Carroll M. Pounders, Oklahoma City. This is a condition almost invariably seen by the family physician and not by the specialist. Therefore, it follows if it is not recognized no hope of control is to be expected.

Intravenous Urography, by Dr. Joseph Fulcher, Tulsa. Attempts have been made for many years to secure some means by which the condition of the kidney could be determined by the administration of drugs. The greatest and last step toward the end has been attained by the application of intravenous urography. This work, of course, should be limited strictly to the genito-urinary specialists. Nevertheless the general practitioner should not prolong palliative and symptomatic treatment when a thorough workout may point to the exact diagnosis as well as the indicated treatment of the case.

Laboratory Tests in the Diagnosis and Treatment of Syphilis, by Dr. Marque O. Nelson, Tulsa. Physicians are too prone to blindly rely upon laboratory findings. Dr. Nelson points out the many findings which may attend positive or negative dark fields. positive or negative Wassermann, and positive or negative spinal fluid findings.

The significance of his article lies in the statement that these findings often vary with the time the specimens are taken as well as other factors entering into the case.

The Diagnosis and Treatment of Prostatic Infections. by Dr. Shade D. Neeley, Muskogee. If there is any one thing that is overlooked to a remarkable degree it is prostatic infections. Non-history of venereal infections should not cause the practitioner to overlook the fact that prostatitis has more than one source of infection. The proper treatment of the condition is well stated by Dr. Neeley.

Local Anesthesia in the Treatment of Fractures, by Dr. Eugene E. Rice, Shawnee. This form of treatment is practically nonexistent in most hands, yet, it is accompanied by so little danger, is so brilliantly successful and the technic so easily mastered, that there is little excuse for it not being used in a great many cases. Some surgeons have used it in literally thousands of cases.

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THE REGISTRY OF BONE SARCOMA

Many physicians and surgeons are already familiar with the registration through the information from the American College of Surgeons of the Registry of Bone Sarcoma. But inquiries reveal that many are not aware of the existence of this great aid to diagnosis and how to proceed to receive the benefit of it.

The American College of Surgeons will supply a form which calls for certain data which should accompany any specimens submitted to the Registry for their opinion. Aside from data as to the patient. operator, roentgenologist, pathologist and hospital, previous condition of health is called for; what physician made the physical examination; diagnosis, based on history, physical examination, X-rays and biopsy, if performed. Then the treatment of various types which may be used: Gross pathology, microscopic pathology, progress of case and findings of last examination.

When in doubt or even not in doubt, it is well to send the microscopic slides to the Registry of Bone Sarcoma for their opinion. The members of the committee are composed of outstanding authorities on malignancy in the United States. Communications should be addressed to Bowman C. Crowell, M.D., Registrar, 40 East Erie Street, Chicago, Illinois.

For more explicit information, those interested are referred to Surgery, Genecology and Obstetrics, pages 721-721, May, 1924.

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Editorial Notes—Personal and General

DR. F. M. COOPER, Ponca City, is reported ill at his home.

DOCTOR WM. PAT FITE, Muskogee, attended the meeting of the American College of Surgeons in Baltimore.

DR. F. G. PRIESTLEY, Frederick, suffered painful injuries when he fell down the steps leading from his office.

DR. W. C. MITCHENER, Okmulgee, sailed March 20th for Vienna, where he will study for three or four months under specialists in diagnosis and obstetrics.

GARFIELD COUNTY MEDICAL SOCIETY held its regular meeting, March 5th, at Enid. Dr. E. S. Ferguson, Oklahoma City, read a paper on "Diseases of the Eye."

DOCTOR J. HOY SANFORD, St. Louis, formerly a member of Muskogee County Medical Society, addressed that Society, March 23rd on "Urology and the General Practitioner."

PAYNE COUNTY MEDICAL SOCIETY held its regular meeting March 20th in the office of Dr. H. C. Manning, Cushing. Dr. Manning spoke on "Pelvic Infections," which was followed by a general discussion.

MUSKOGEE COUNTY MEDICAL SOCIETY, March 30th, heard Dr. Leonard Williams, Oklahoma City, on "New Methods of Diagnosing Gynecological Conditions," and Dr. W. K. West, Oklahoma City, on "Fractures of the Leg."

KIOWA COUNTY MEDICAL SOCIETY held its regular meeting March 23rd, at Hobart, Oklahoma. Dr. B. H. Watkins, Hobart, read a paper on "Clinical Diagnosis of Obstruction of the Bowels." This was followed by a round table discussion.

CARTER COUNTY MEDICAL SOCIETY met at Ardmore, March 17th. Dr. H. H. Turner, Oklahoma City, spoke on "Endocrinology," which was followed by a talk by Dr. C. R. Rountree on "Fractures of the elbows, wrists and ankles, alignment and treatment."

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETIES met March 23rd at Henryetta, for their regular meeting. Dinner was served at 6:00 p. m., after which Drs. C. V. Rice and E. H. Fite, Muskogee, delivered addresses on "Coeliac Disease," and "Urinary Obstruction."

DOCTOR CURTIS R. DAY

Dr. C. R. Day, 65 year old pioneer Oklahoma City physician died March 22nd, at St. Anthony's Hospital, after a month's illness.

Dr. Day was born in Johnson County, Missouri, in 1866, and practiced medicine at Mayview, Mo., for ten years before moving to Oklahoma. He came to Oklahoma in 1901 and started his practice at Edmond. He later moved to Oklahoma City where he has been for the past twenty-three years. He was a member of the first Oklahoma Legislature and at one time dean of the University of Oklahoma School of Medicine.

Funeral services were conducted by Rev. E. C. Wardner, pastor of the First Presbyterian Church of Hobart, and burial was in Rose Hill Cemetery.

Dr. Day is survived by his widow, two sons, one sister and one brother.

DOCTOR W. T. TILLY

Dr. W. T. Tilly, Muskogee, age 66 years, pioneer Oklahoma physician, died at the Oklahoma Baptist Hospital, March 10th, after a long illness.

He was born in Coker Creek, Polk County, Tennessee, April 25, 1864. Preliminary education was had in the grade schools. He graduated from the Louisville Medical College in 1894. He practiced in Coker Creek for two years, moving to Pryor, Oklahoma, where he remained until 1906. He moved to Muskogee in 1910 and became staff physician and surgeon of the M. O. & G. railroad. During the World war he served as a member of the State medical examining Board. While Judge R. L. Williams was governor, from 1915 to 1919, Dr. Tilly served as an honorary lieutenant-colonel on the governor's staff.

In 1920 Dr. Tilly established the Hospital which bore his own name and which he operated until two years ago.

On October 10, 1930, he suffered the stroke of paralysis from which he never fully recovered. His condition grew steadily worse from this time and resulted in his death March 10th.

He is survived by his wife, Mrs. Alice Hall Tilly and two sons, three sisters, and two brothers.

Funeral services were held March 13th at the First Methodist Episcopal Church South, with Rev. W. S. Vanderpool officiating. Burial was in Greenhill Cemetery with the Masonic order in charge of the services.

POSTOPERATIVE APNEUMATOIS (ATELECTASIS) AND POSTOPERATIVE PNEUMONIA

Pol N. Coryllos, New York (Journal A. M. A., July 13, 1929), concludes from his experiments that the determining cause of postoperative atelectasis is bronchical obstruction by viscid bronchial exudate. Postoperative immobilization of the thoracic cavity by pain, impairment of cough and respiratory movement by narcotics, and posture are only favoring factors. The dominant factor in the post operative lung condition is bronchial obstruction and impairment of the free bronchial drainage. The fate of the lung parenchyma after bronchial obstruction depends on the microbes infecting the obstructing mucus. A nonvirulent type IV pneumococcus will produce atelectasis, a more virulent pneumonia, pyogenic and anaerobic organisms, lung suppuration or gangrene. In atelectasis pneumococcus group IV is always present, just as in pneumonia. Between them there is a difference only in the degree of virulence. Clinical evolution, roentgenographic study, pathologic changes, and, above all, experimental investigation, offer evidence for this conception.

TREATMENT OF VARICOSE VEINS OF THE LEGS

A survey of a series of 4,607 cases made by Norman J. Kilbourne, Los Angeles (Journal A. M. A., April 20, 1929), shows positively that the mortality by operative excision of varicose veins in America is one in 250. The mortality by injection cannot be so accurately determined; but a study of 50,000 cases shows that it is less than one in 4,000. Recurrences after operation average 30 per cent, and after injection 6 per cent. Although embolism, phlebitis, ulcer formation and gangrene are rare, no injection should be made until they have been prevented by thorough preliminary study.

EXPERIENCE WITH THE HENCH-ALDRICH METHOD FOR DETERMINING BLOOD UREA

Edwin C. White and Harry C. Ricker, Baltimore (Journal A. M. A., April 20, 1929), state that the Hench-Aldrich method has advantages over the urease method because of its rapidity and simplicity. A single determination can be made in from ten to fifteen minutes, and if several are to be made together the time required for each is proportionately less. When a centrifuge holding eight tubes is used, eight determinations can be made in less than half an hour. The simplicity of the method is such that it can easily be carried out by one with even a minimum of laboratory training. For this reason it probably gives more accurate results in the hands of a relatively inexperienced worker than the urease method would give. From the results obtained by White and Ricker it is clearly evident that in no case was a clinical error made by the use of the mercury method; indeed, in a majority of cases the check against the urease method (at least in the ranges up to 70 mg. per hundred cubic centimeters) was as close as one could obtain in duplicate determinations by the urease method. The report is made in the belief that greater familiarity with this method will lead to its advantageous employment in many instances.

CONDENSED PROGRAM

THIRTY-NINTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, OKLAHOMA CITY, MAY 11, 12, 13, 1931

Meeting Places—Shrine Temple, Oklahoma City, Telephone 2-0036.

Hotel Headquarters — Skirvin Hotel, Telephone 2-1251.

Registration — All physicians, except those from outside the State and visiting guests, must hold membership certificates for 1931 before they may register. It is urgently requested that all physicians attend to this matter by arranging their membership status with their County Secretary, if it is in doubt, before attempting to register.

Women will register Mezzanine floor Skirvin Hotel.

Delegates—Prior to the meeting the President will appoint a Credentials Committee. This Committee will function for the purpose of registering Delegates at the Shrine Temple, early on the evening of Monday, May 11th. It will save a great deal of time for the Council as well as aid the quick organization of the House of Delegates if each Delegate will present his credentials as soon as possible to the Credentials Committee.

Papers—Are the sole property of the Association and should not be taken from the meeting place but should be deposited either with the State Secretary or with the Secretary of the Section in which they are read. These papers should be prepared in triplicate, a copy for the author's use; a copy to be sent prior to the meeting to the one designated to open discussion of the paper; the third copy for use in the Journal. Before final publication the author will be sent proof for his correction as well as quotations on the price of reprints, which are furnished by the printer of our Journal, at about actual cost. Reprints should be requested in advance, otherwise the type may be destroyed, after which they can only be had by resetting the article entirely. Papers should be double spaced, with wide margins, and should contain:

1. The title.

2. Name of author, address and street number.

3. The section in which read and time presented.

House of Delegates—Will meet at 8:00 P. M., Monday, May 11, in Harding Hall, Shrine Temple, for the transaction of such business as is necessary.

The House of Delegates must also meet at 8.00 A. M., Tuesday, May 12th, in the small banquet room, of the Shrine Temple. This meeting for election of officers.

Council—Will meet at the Skirvin Hotel, Monday, May 11th, 3:00 P. M., and thereafter upon call of the President. It is the function of the Council to originate and consider all business affairs of the Association. All matters involving finances and expenditures of funds must be presented to and considered by that body.

Hotel Rates—Dr. J. Z. Mraz, Chairman on hotels for the annual meeting, announces the following rates:

SKIRVIN HOTEL

(All rooms with bath)

Single	$250, $2.75, $3.00, $3.50, $4.00
Double	$5.00 and $6.00

HUCKINS HOTEL

Single, without bath	$2.00
Single, with bath	$2.50and $4.00
Double	$1.00 more than single

WELLS-ROBERTS HOTEL

(All rooms with bath)

Single	$2.50, $3.00 and $3.50
Double	$4.00, 4.50 and $5.00

BLACK HOTEL

(All rooms with bath)

Single	$2.00, $2.50 and $3.00
Double	$4.00 and $4.50

KINGKADE HOTEL

Single, without bath	$1.25 and $1.50
Single, with bath	$2.00 and $2.50
Double, with bath	$3.50, $4.00 and $4.50

EGBERT HOTEL

Single, without bath	$1.50
Single, with bath	$2.00 and $2.50
Double, without bath	$2.50
Double, with bath	$3.00 and $3.50

PARK-O-TELL HOTEL

(Tourist Hotel) near State Capital Building on Highway 77, or located at Magnolia and Lincoln Blvd. Dining room and regular hotel accomodations. All rooms, except two, with bath.

Single	$2.50 - up
Double	$3.50 up

Shower and tub in every room; garage for car included in price of room.

SECTION AND MEETING PLACES

SHRINE TEMPLE

Exhibits—All exhibits, both commercial and scientific, as well as registration will

be held in the large banquet room on the ground floor. Registration may be made at this place beginning with the morning of Monday, May 11th.

General Medicine—Will meet on the ground floor, small banquet room.

Eye, Ear, Nose and Throat—Will meet in the Band Room, ground floor.

Surgery—Will meet in Harding Hall.

JOINT SCIENTIFIC SECTIONS

The mornings of May 12th and 13th, beginning at 8:30 o'clock, will be held in Harding Hall as follows:

TUESDAY, MAY 12TH

8:30 *Fractures Clinic*—Chairman, Wade H. Sisler, M.D., Tulsa.
Mal and Ununited Fractures—W. P. Fite, M.D., Muskogee.
Fractures of the Upper Extremity S. R. Cunningham, M.D., Oklahoma City.
Fractures of the Skull—Horace Reed, M.D., Oklahoma City.

9:30 Moving Pictures.

10:30 *Address*—John Musser, M.D., New Orleans.

11:15 *Address*—Dean Lewis, M.D., Professor of Surgery, John Hopkins University, Baltimore.

WEDNESDAY, MAY 13TH

8:30 *Fractures Clinic*—Chairman, Wade H. Sisler, M.D., Tulsa.
Mal and Ununited Fractures—W. P. Fite, M.D., Muskogee.
Fractures of the Upper Extremity S. R. Cunningham, M.D., Oklahoma City.
Fractures of the Skull—Horace Reed, M.D., Oklahoma City.

9:30 Moving Pictures.

10:30 *Address*—Vilray P. Blair, M.D., Professor Clinical Surgery, Washington University School of Medicine, St. Louis.

11:15 *Address* — Bransford Lewis, St. Louis, Mo.

Committees—The following Committees have been appointed to function on behalf of Oklahoma County. Prospective attenants should communicate with these committeemen with reference to the particular feature which they may be directing:

General Chairman—Dr. Cyril E. Clymer.

Vice-Chairman—Dr. Henry H. Turner.

Program—Dr. A. W. White, Chairman; Dr. Ray Balyeat.

Finance—Dr. E. S. Lain, Chairman; Dr. L. J. Starry.

Badges—Dr. Phil McNeil.

Entertainment—Dr. J. M Alford, Chairman; Dr. Rex Bolend; Dr. Dick Lowrey.

Golf—Dr. Wendell Long.

Reserve Officers—Dr. John A. Roddy, Chairman; Dr. Lea A. Reily.

Fraternal Dinners—Dr. E. P. Allen; Dr. John Heatley.

Women's Entertainment—Ladies' Auxiliary, Mrs. C. M. Pounders, President.

Hotels—Dr. John Z. Mraz.

Exhibits—Dr. Earl D. McBride.

Scientific Exhibits—Dr. Curt von Wedel.

Fraternal dinners will be held Tuesday, May 12, 6:00 P. M.

General Meeting will be held Tuesday, May 12, 8:00 P. M., Harding Hall, Shrine Temple.

PROGRAM, GENERAL MEETING

TUESDAY, MAY 12, 8:00 P. M.
Shrine Temple, Oklahoma City

Presiding—C. E. Clymer, M.D.

Invocation—Rev. A. M. Jayne, Oklahoma City.

Music.

Address of Welcome—Representative of Chamber of Commerce, Oklahoma City.

Response—W. Albert Cook, M.D., Tulsa.

Music.

Introduction of E. S. Ferguson, M.D., retiring President.

Introduction of President-Elect Henry C. Weber, M.D., Bartlesville.

Introduction of Guests.

President's Address—Henry C. Weber, M.D., Bartlesville.

ORATIONS

WEDNESDAY, MAY 13TH, 7:45 P. M.
Harding Hall, Shrine Temple

"Gastro-duodenal Ulcer, Medical Aspects"—A. W. White, M.D., Oklahoma City.

"Gastro-duodenal Ulcer, Surgical Aspects"—P. P. Nesbitt, M.D., Tulsa.

"Recent Advancement in Allergy"—Ray M. Balyeat, M.D., Oklahoma City.

President's Reception and Dance, Wednesday, May 13, large dining room, Shrine Temple.

GOLF

Annual State Medical Tournament

MAY 11TH. 1931

Oklahoma City Golf and Country Club (Nichols Hills). Start teeing-off at 9:00 A. M. Every member of State Medical Association eligible and guest of Oklahoma County Medical Society. Prizes numerous and fine. Arrange to play:

1. By mailing name and estimated handicap to Golf Committee, 714 Medical Arts Building, Oklahoma City.

2. By indicating to Registrar.

To play golf on May 12th and 13th, consult golf committee or speak to registrar —it will be arranged.

OKLAHOMA PEDIATRIC SOCIETY

MONDAY, MAY 11TH, 1931

Morning Session 9.00 *o'Clock*

Children's Hospital—800 N. E. 13th St.

Clinics By

Dr. J. B. Snow
Dr. Geo. H. Garrison
Dr. Clark H. Hall
Dr. A. L. Salomon
Dr. W. M. Taylor

Afternoon Session 1:30

Shrine Temple—Sixth and Robinson Ave.

1. *Chairman's Address* — Carroll M. Pounders, M.D., Oklahoma City.
2. *The Diagnosis of Enlarged Thymus* —Fannie Lou Brittain, M.D., Oklahoma City.
3. *Personal Experience with Enlargment of the Thymus*—Maurice J. Searle, M.D., Tulsa.
4. *Neuro-endocrine Problems in Children*—Henry H. Turner, M.D., Oklahoma City.
5. *Congenital Neurosyphilis with Many Convulsions, Particular Reference to the Effect of Tryparsamide*—T. H. McCarley, M.D., McAlester.
6. *Scurvy in Children*—C. W. Arrendell, M.D., Ponca City.

Election of Officers.

WOMEN'S AUXILIARY

Mrs. J. Z. Mraz, Editor, Oklahoma State Women's Auxiliary, makes the following announcement:

General Headquarters—Skirvin Hotel.

Registration—Mezzanine floor (it is requested that registration be made as soon as possible.

Progressive House Party—Monday evening, May 11th, 1931.

Meeting of the Women's Auxiliary—Tuesday, morning 10:00 o'clock, May 12th, followed by luncheon.

Dance—Wednesday, May 13th, 9:00 P. M., Shrine Temple.

Mrs. Carroll M. Pounders, 904 East 19th Street, Oklahoma City, is General Chairman of arrangements for the social entertainment of the visiting ladies.

Golf—Dr. Wendell Long, announces that the Oklahoma City Golf and Country Club, Twin Hills Golf Club and the Spring Lake Links will be available for visiting physicians.

SECTION CHAIRMEN

GENERAL MEDICINE

Ben H. Cooley, M.D., Chairman, Norman.

H. H. Turner, M.D., Secretary, 1200 North Walker, Oklahoma City.

EYE, EAR, NOSE AND THROAT

Ruric N. Smith, M.D., Chairman, Medical Arts Bldg., Tulsa.

A. L. Guthrie, M.D., Secretary, Medical Arts Bldg., Oklahoma City.

SURGERY

W. C. Vernon, M.D., Chairman, Okmulgee.

Leonard Williams, M.D., Secretary, 1200 North Walker, Oklahoma City.

All communications with reference to the Scientific Sections should be addressed to these officers.

ORTHOPAEDIC SURGERY

Edited by W. K. West, M.D.
520 Osler Building, Oklahoma City.

"Colles' Fracture"—Surgical Monograph on Reconstructive Surgery of The Upper Extremity. By Arthur Steindler, Page 254.

The disability following Colles' fracture of the wrist depends, as to degree and duration, upon several factors. The extent of the deformity of the bone is not the only determining factor in the

percentage of disability. There are some cases that show a marked Silver-Fork deviation and yet have acquired a great degree of usefulness, while others, showing much less deformity, are types that result in considerable disability. One of the causes for disability, other than bone deformity, is the injury to the ligaments and the hemorrhage which results, later causes tendon sheath involvement and prevents free action of the flexor tendons. Another cause for disability is a resulting traumatic arthritis which may have a great deal to do with the extent of disability. The muscles of the forearm undergo shrinkage and degeneration and the circulation may be impaired. The age of the patient usually has a great deal of influence upon the outcome. Old people tend to develop traumatic arthritis.

The writer covers fifteen cases of old Colles' and forearm fractures ranging in age from fifteen to sixty-seven years and duration of deformity from three weeks to a year following injury.

In the first group there are six cases with considerable deformity. Of the six, three had poor function and three good function. Five cases had moderate, slight, or no deformity and in this series function was poor in two cases, fair in one, and good in two. In other words, the degree of deformity did not entirely govern the degree of disability. On the other hand, there were six cases over forty years of age, five of which had very little, if any, deformity. But, the end-result was poor in five of the six and fair in one case.

In the treatment of fracture deformities of the forearm and wrist, the after-treatment plays a most important part. The patient should have early motion, starting within eight or ten days, and should be continued until the maximum recovery has been reached.

"Infantile Paralysis"—Textbook on Orthopedic Surgery for Nurses by Philip Lewin, Page 53.

The writer in this brief discussion of a condition that was very prevalent last year brings out a few of the important points in the consideration of the cause, diagnosis, and treatment. This disease is of an acute infectious nature, usually occurring in young children and resulting in partial paralysis of the extremities, abdominal wall, and back. The causative factor is unknown, but is sometimes described as a filtrable virus and sometimes a type of streptococcus. The infective agent usually gains entrance through the respiratory tract and is carried to the spinal cord or brain. Milk-borne epidemics have been reported.

From a pathological standpoint, the first change noted is meningitis, accompanied by an increase of spinal fluid. The spinal cord changes are most marked in the anterior horns at the lumbar and cervical enlargements. The paralysis results from, first, a direct pressure on the nerve cells; second, anemia, due to constriction; and, third, direct action of the virus on nerve-cells, causing degeneration.

There are several stages: First, the acute stage, lasting about a week. Second, subacute stage, which lasts from one to four weeks during which time the constitutional symptoms subside, but the paralysis persists. Third, stage of partial recovery, a period from the end of the first month perhaps to the end of the second year. Fourth, chronic stage, which begins when return of function has largely ceased.

The general symptoms which lead one to suspect infantile paralysis are as follows: Illness of a child occurring between the months of June and November, indisposition, fever, irritability, neck rigidity, convulsions. Later, tenderness of the spine and back muscles is noted. Slight weakness and tenderness of one of the extremities may be the first sign of beginning paralysis.

Spinal puncture reveals a clear, colorless fluid under moderately increased pressure.

Except in epidemics the diagnosis is usually not made before there is some evidence of paralysis.

The prognosis depends upon one of three factors: First, the area and extent of destructive lesion of the cord; second, the resistance of the patient; and, third, the treatment of the weakened parts.

Deformities occur because of the unopposed action of muscles. That is, the deformities are produced by a pull of the normal flexor muscle which is unopposed by a paralyzed extensor muscle.

The orthopedic treatment should begin as soon as the diagnosis is made. Mechanical treatment should be used to prevent deformity such as equinus of the foot, flexion of the knee, contraction of the shoulder, etc.

In the acute stage there must be absolute rest. A lumbar puncture may be performed to relieve increased pressure. As soon as the patient's comfort will permit, a careful record of individual muscle power should be made on specially prepared blanks in order that the progress may be properly studied. Hot water baths should be given. Motion of the affected parts may be begun early, and without pain, in hot water, whereas in bed, the motion is extremely painful.

In the subacute stage muscle training, in addition to the splinting to prevent deformity, there must be a protection against the overstretching of muscles. These indications are met by such measures as abdominal binder, spine brace, leg and arm splints. Nurses should use care in maintaining correct bed positions. Later on, exercises are taken in warm water tanks and muscles reeducation is carried out. All cases of infantile paralysis should learn to swim, if possible.

In the chronic stage braces are worn, massage and muscle reeducation continued. It is most important to have a brace if there is any involvement of the spine. In the cases in which there has been a resulting deformity, in young children especially, a great deal can be done for the correction of these deformities by mechanical or operative procedures. However, it must be borne in mind that it is not best to operate within two or three years following the acute attack. Probably the most common types of operations could be described as, first, tenotomies for the lengthening of the tendons of contracted normal muscle groups and, second, arthrodeses which consists of removal of sufficient bone about the joints to correct deformities and to later cause ankylosis which will prevent the recurrence of the deformity. Arthrodesis is especially useful in the operative treatment of paralytic clubbed-foot deformities. All operative procedures should be followed by proper fitting braces for several months after the child has begun to bear weight on the affected member.

DERMATOLOGY AND SYPHILOLOGY

Edited by James Stevenson, M.D.
615 Medical Arts Building, Tulsa

Two Types of Arsphenamine. Rueben L. Larsen, Am. J. of Syph. 15:50-58, January, 1931.

Arsphenamine is commonly made by precipitating the drug from methyl alcohol with ether. Larsen calls attention to the frequency of reactions following the use of arsphenamine so prepared, and believes the methylation the cause of these reactions. He discusses Kober's method for the preparation of arsphenamine in which only aqueous solutions are used, and which the drug is finally precipitated with a cold aqueous solution of hydrochloric acid. The Kober arsphenamine differs from the arsphenamine prepared by earlier methods in several ways: its sulphur content is less, averaging .3 per cent; it is very slowly soluble in water, but insoluble in methyl alcohol. The curative dose in rats infected with Trypanosoniasis averages 8.5 mg. per kg., while the tolerated dose averages 190 mg. per kg. The author reports 805 injections in human syphilis made using the arsphenamine prepared by the Kober method without a single reaction.

Concerning the Curative Values of Certain Bismuth Compounds. Sigmund S. Greenbaum, Am. J. of Syph., 15:59-71.

The author cites clinical cases to show that the various bismuth preparations on the market for the treatment of syphilis vary in their efficacy. Many manufacturers have placed a product for use which has never been studied experimentally beforehand. Greenbaum reports the results of experiments on rabbit syphilis with twelve commonly used bismuth products. Injections were given intramuscularly and cure was determined by the tissue transfer (lymph gland) method. A wide variation in the curative dose of the different bismuth products was noted. "Bismuthoidal" was curative in dosage as low as 2 mg. per kilo., while more than 25 mg. was required in the case of bismudol, and also with "iodobismuthate of quinine." Bismuth salicylate also proved relatively inefficient. Potassium bismuth tartrate in aqueous solution or in oil were efficient, being curative in doses of 5 mg. per kilo. Conceding that experimental results obtained in rabbits does not necessarily indicate that the same will follow in the treatment of human syphilis, the author maintains that the bismuth preparations now in use vary widely in effectiveness, and that only the established few preparations should be used. The vaunted superiority of new preparations should be carefully investigated before being utilized.

Herpes Zoster With Varicella. R. R. McCormick, Journ. A. M. A. 96:766-770, March 7, 1931.

Reporting four cases of Herpes Zoster occurring simultaneously in adults in contact in the same occupation, the author supports the theory that there is more than coincidence present when Zoster and varicella occur simultaneously. One of the four cases reported developed a generalized varicella-like eruption on the twelfth day of his Zoster attack, and all cases occurred in the midst of a local epidemic of varicella. One death occurred and the necropsy indicated the primary pathology to be in the posterior ganglions, secondarily involving the posterior portion of the spinal cord. A review of the literature on the coincident occurrence of these two diseases is given.

The Treatment of Cardio-vascular Syphilis. Joseph E. Moore and James H. Danglade, Am. Heart J. 6:148, 1930.

The autors emphasize the necessity of avoidance of the Herxheimer reaction in treating cardio-vascular syphilis, and commence treatment cautiously with bismuth, mercury and the iodides. Later neoarsphenamine or bismuth is given in small doses. Treatment is prolonged, a minimum being two years. With the anti-syphilitic treatment is combined the routine medical measures as rest, restriction of activities, and digitalis.

A study of 43 patients with aortic aneurysm, 90 with aortic regurgitation and 8 with other various forms of syphilitic cardio-vascular disease shows that life has been much prolonged over the average in untreated cases.

These data demonstrate that properly directed anti-syphilitic therapy is of great benefit in cardio-vascular syphilis.

UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D
1010 Medical Arts Building, Oklahoma City

CLIPPINGS FROM THE UROLOGIC AND CUTANEOUS REVIEW

Spare specifics and spoil the patient.

The more dark fields the fewer regrets.

Sharpen your needles and keep your patients.

All things have an end except the fears of a syphilitic.

Whale away at syphilis when it's new; coax it when it's old.

Always fix the purpose of your treatment twenty years in the future.

The patient treats for today and tomorrow; the wise doctor for the future.

Most neurosyphilitics get that way through some doctor's inadequate treatment.

Undertreat syphilis in its early stages and you swell the ranks of incompetents and public charges.

Believe every sore on the penis to be a chancre until you prove it to be something else.

An apple a day may keep the doctor away but a "peach" some day will bring him back.

To have the fullest respect for syphilis you must have practiced medicine for at least twenty years.

Some fear death and some fear hell but to the syphilologist the most fearsome thing of all is the spirochete.

Make your syphilitic patients read the 38th Psalm. They'll be better men for it and better patients, too. And, by the way, read it yourself.

If you believe that you cure syphilis just because you render the blood Wassermann negative, you are certainly making your patients candidates for cerebrospinal syphilis.

If you can look back over twenty years without recalling a syphilitic inadequately treated through your own fault, then truly you may claim that you have been a successful practitioner.

Some of the continental syphilologists are wondering just how much influence the spirochete had in starting the World war. One might go further and wonder how much of all the hell on this earth has been caused by the spirochete—in some ruler's brain.

INTRAVENOUS PYELOGRAPHY IN DIAGNOSIS OF RENAL TUBERCULOSIS ABSTRACTED IN S. A. M. U.

Perlmann asserts that the favorable results of nephrectomy in unilateral renal tuberculosis are largely due to the improved methods of urologic examination. First he discusses cystoscopy and the indigo carmine test. In a large percentage of cases these two diagnostic methods are satisfactory. In other instances they cause difficulties and are therefore not advisable, and in such cases intravenous pyelography has proved helpful. The author gives several case reports which illustrate the significance of pyelography by means of intravenous administration of the contrast medium. This method is helpful in cases of unilateral tuberculosis, but it is particularly indicated in bilateral disorders, in contracted bladder, in case of strictures of the ureters or the urethra, and for control examination after unilateral nephrectomies. Intravenous pyelography is without danger for the patient and reveals the anatomic conditions of the urinary tract. However, as a functional test it is alone not sufficient, and it has to be supplemented by other methods. In patients with tuberculosis of the bladder, intravenous pyelography is much less painful than intravesical examination.

EXTRACTS FROM THE WEEKLY MEETING OF UROLOGICAL STAFF—UNIVERSITY HOSPITAL

A book report "Gonococcal Urethritis in the Male," by Dr. P. S. Pelouze of University of Penn., was given by Dr. Akin. This included a study of applied anatomy and histology, bacteriology and defensive processes, symptoms and clinical courses, with charts to indicate same, treatment, cause and prevention of complications and method of determining cure. The scope of the book was unfortunately, too extensive to permit desirable detailed discussion by the staff.

Dr. Borecky agrees with most of the author's ideas but has not found vaccine to be very effective. He also thinks we often overtreat patients by too strong solutions.

Dr. Moore thinks that patients vary as to the anatomy of the urethra which accounts for the fact that some are not as susceptible as others and may not be so hard to cure. For example there are occasional cases of congenital strictures which prevent drainage and the types of epithelium are different in some cases from others. Dr. Moore feels that Methyln Blue is as good or better method than gram stain for differentiation from gonnococcus. He also emphasized the fact that non-specific urethritis is very common and can be found if more microscopic examinations are made. He gives the most common causes of non-specific urethritis as: chemical irritation, sexual excesses. He thinks also that we should instruct patients as to diet because of its psychic effect, and also of its effect on the course of the disease. Exercise as mentioned by the author, should be moderate.

Dr. Hayes stated that the principal points in the book which impressed him on first reading were: 1. Heat therapy has little or no effect on Gonorrhea. 2. Blonds are much more susceptible than brunettes and are much harder to cure. 4. The disease runs a definite clinical course just as typhoid, measles, or any other infectious disease and by making proper records we can easily determine whether or not our method, up to the present time, whereby daily records can be kept indicating the true condition of the patient. 6. Complications are invariably due to trauma, of some type, notably, alcohol, sexual excess, or overtreatment. Acute epididymitis is due to straining with a full bladder thereby forcing infected urine down the vas deferens. 7. Diet has no effect on the course of the disease tho, the ingestion of alcohol is harmful. 8. Treatment should be of the gentlest type and no treatment at all is preferable to too much treatment.

Dr. Bolend would like more evidence before accepting the idea that there is not more than one strain of gonococcus. He thinks that the gonophage will probably prove to be of considerable value when it has been studied a little more. He believes that diet has little or no effect on the course of the disease and that we should be sincere with patients and avoid giving them a lot of instructions which have no scientific basis.

Dr. Bolend also feels that the 2 glass test has a bad psychic effect in that the patient learns to do it himself and draws wrong conclusions from it. The only way it is of value is when microscopic examinations are made of each specimen and deductions made therefrom. Permanganate irrigations cannot be carried out without trauma and he is opposed to them.

Dr. Wallace believes that we cannot intelligently treat G. C. until we learn to classify it in its different stages, that is, incubation, accitivity, decline, and chronic stage. The treatment then, should be administered accordingly. He also thinks the 2 glass test extremely valuable and uses it in all cases. Only way to demonstrate the true pathology without injury to the patient.

EDUCATIONAL RELATIONS OF PROFESSIONS

David Allan Robertson, Washington, D. C. (Journal A. M. A., April 27, 1929), asserts in a paper read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 1929, that specialization in various academic divisions has contributed greatly to American educational progress. With the increase of specialization has come the danger of one educational unit isolating itself from another. Conscious of the danger, some of these divisions have learned the importance of cooperating in the solution of common problems. Among the professions and professional schools the danger likewise exists and to some extent has been met in the same way. No profession, no educational group in the United States, has made greater progress through specilization than medicine. At the same time medicine has endeavored to guard against isolation from the rest of the educational world. There has been an attempt to avoid the isolation of medicine from education; meanwhile there is evidence of isolation of education from medicine. Without losing the advantages of specialization Robertson hopes that each division of education will afford every other one the advantage of its experiences and that each will welcome the cooperation of other educational units. The schools and colleges can more effectively cooperate with the medical profession if the profession will teach them what a physician does. Specialization and cooperation is his plea.

RELATIONSHIP OF MEDICAL EDUCATION TO COST OF MEDICAL CARE

Ray Layman Wilbur, Washington, D. C. (Journal A. M. A., April 27, 1929), in a paper read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 1929, says that as at present organized, medical education is costly in time and in money to the student, to the teaching institution, and consequently to the public. There is no valid reason why the medical course leading up to the hospital experience should require longer than three calendar years. There is certainly no adequate reason for the long summer vacation period. Following this three-year period, medical education now requires intimate association with the hospital in the form of an intership or something similar, and close supervision of students actually carrying on the functions of physicians. Just at present there is developing an exuberance in some plans for building for medical instruction leading up to the degree of doctor of medicine. In one of our great cities the plan is now going forward for the construction of a plant at an approximate cost of $55,000,000, with the primary aim of undergraduate instruction of medical students. With a striking absence of facilities for the profession to obtain real opportunities for so-called postgraduate training, it seems absurd to aggregate such large sums of money in metropolitan centers for undergraduate medical instruction. No such sums are actually required to give the training necessary. There is no great advantage to the medical student in being in a large, elaborate, highly organized plant. Small classes are requisite for modern medical training. Simple conditions in which the patient, teacher and student can have daily and intimate contact, need not be excessively expensive. It is evident as we look at medical education that there has been an elaboration of plant, a marked increase in expense, an increase in the amount of time required for training, and a general set-up that starts the young physician off comparatively late in life after a large expenditure of time and money. Since the only capital which a physician has is in himself, and the only possession he has is his time, and since life is limited, it is important that a proper scheme be evolved so that medical education may not put too great a cost on the sick. We do not want cheap medical education or cheap men; but we do need a demand all the economies that are reasonable and possible during the period of medical training if we are to solve the coming problem of the distribution of medical service at a reasonable cost to the public. Any one who tries to chart the course of a young physician going into our present economic system cannot help but be impressed with its poor organization from an economic standpoint. It is just as clear that while this lack of organization may make it difficult for the young physician, it makes it doubly difficult for the patient unless he happens to be so fortunately situated as to be empty of pocket or rich. It is clear that medical practice is far behind the plans that have been developed in industry and in many other forms of public service. It will require the most searching study of the facts and the application of these facts in the true spirit of the experimenter if we are to develop conditions that will make it possible for physicians to meet their own problems and for a single illness not to become a prolonged handicap to an individual or to a family. Perhaps there is need in medical education for the training of physicians in the field of economics and social organization. While it is true that the physician belongs to a profession with a long history of service for any one in physical need, it is likewise true that training in the social sciences has not been the strong point of the medical student or of the medical school. In fact, the physical and biologic sciences have taken such a predominant place in the curriculum and in our thinking that it has been difficult to find time for courses for the training of physicians in handling even their simple business affairs. Perhaps the medical school is not ready yet to insist on a training in economics, goverment, political science and history, and the relations of medicine thereto; but unless such training and such thinking are soon started the present chaos in medical practice will inevitably make for high charges on the sick and an inadequate return to the physician. The medical profession must stand for adequate preparation and sound training; but it need not demand abnormal expenditures of time and money to provide elaborate specialized training in all of the fields of medicine for the candidate for the degree of doctor of medicine. Simplification of the curriculum, reduction in the number of calendar years, increase in the hospital opportunities, the adoption of relationships of hospital to medical practice so that the young physician may receive a salary and yet be connected with hospitals and clinics for further training, will all help to make him more effective and of ultimate benefit to the public.

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